

Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Vol. VIII.

CHICAGO, ILL., MARCH 22, 1909.

No. 9.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydrated" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

Charlotte, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La.

DEXTER Portland Cement
THE NEW STANDARD

Sole Agents **SAMUEL N. FRENCH & CO.** Philadelphia



UNION MINING COMPANY

Manufacturers of the Celebrated

MOUNT SAVAGE
FIRE BRICK
GOVERNMENT STANDARD.

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

**Lime Kiln and
Cement Kiln
Construction**

Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

UNION MINING CO.,
Mount Savage, Md.

CAPACITY, 60,000 PER DAY.
ESTABLISHED 1841.

SPECIAL FEATURES IN THIS NUMBER

Annual Meeting of the Mason Material Dealers of New Jersey.
Ohio State Stone Club in Convention at Columbus.
Northwestern Cement Users Meeting in Minneapolis.
Concrete Convention and Exhibition at Toronto.
Economical Storage for Heavy Goods, Illustrated.

Digging Cement Rock Without Blasting

for less than 12c per cubic yard. That's what the Burt Portland Cement Co., Bellevue, Mich., are doing with a Vulcan Steam Shovel.
ASK US TO SHOW YOU.

The Vulcan Steam Shovel Co. 129 VULCAN PLACE
TOLEDO, OHIO



Phoenix Portland Cement UNEXCELLED FOR ALL USES.

Manufactured by

PHOENIX CEMENT CO.

NAZARETH, PA.

Sole Selling Agent WM. G. HARTRANFT CEMENT CO.,
Real Estate Trust Building PHILADELPHIA, PENNSYLVANIA

Ottawa Silica Co.'s Washed White Flint Sand

Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

OTTAWA SILICA CO., . . . Ottawa, Ill.



BEST BELT
FOR GRIFFIN,
TUBE AND
BALL MILLS

Chicago Belting Co.

CHICAGO, PHILADELPHIA, PORTLAND, ORE., NEW ORLEANS.

MAKERS OF **Leather Belting**

BEST BELT
FOR
DAMP
PLACES



ALMA Portland Cement

STANDARD BRAND
OF
MIDDLE WEST.

Specially adapted to all Reinforced Concrete and High-Class Work.

Alma Cement Co.
WELLSTON, OHIO.

How do you figure your Lime Kiln, Rotary Cement Kiln and other furnace expenses and charges for Refractories?
By the cost of the BRICK, or by the length of the service they will give?

Harbison-Walker Refractories Co.

FIRE CLAY
SILICA
MAGNESIA
CHROME

Brick

Are made of the highest grade raw materials under expert supervision, in modern up-to-date works, and are worth more because better than others. They last longer and are more economical. You can prove this statement in your own works by sending us a trial order. Information, records and prices on request.

Harbison-Walker Refractories Co.

LARGEST
CAPACITY

PITTSBURG, PA.

PROMPT
SHIPMENTS

"GOLD MEDAL" DYNAMITE

MANUFACTURED BY

Illinois Powder Mfg. Co.

Security Bldg.

St. Louis - - - Missouri

BLASTING POWDER

AND

BLASTING SUPPLIES

Quick Shipments

Lowest Prices



A PERFECT RECORD FOR TEN YEARS

IN ALL KINDS OF CONCRETE WORK

Send for 72 page Illustrated Catalog No. 25

MARQUETTE CEMENT MANUFACTURING CO.

Marquette Building, Chicago





TRADE-MARK

Peninsular Portland Cement

Acknowledged by competent Architects and Engineers to be unequalled for fineness, wonderful development of strength and sand carrying capacity.

"THE BEST IS THE CHEAPEST"

Address
Peninsular Portland Cement Co.
Jackson, Michigan

GRAVEL WASHING PLANTS



Stone Crushing, Cement and Power Plants

J. C. Buckbee Company, Engineers, CHICAGO

"LEHIGH" PORTLAND CEMENT



High Tensile Strength, Finely Ground, Light and Uniform in Color.

MANUFACTURED BY THE

Lehigh Portland Cement Co.

ALLENTOWN, PA

Western Office:
725 Rockefeller Bldg.,
CLEVELAND, OHIO

Write for Catalogue

Capacity, 8,000,000 Yearly.

Red Ring Portland Cement



Manufacturers: Sales Office Liggett Bldg. St. Louis

Tell 'em you saw it in ROCK PRODUCTS.



**Strength
Uniformity
Satisfaction**

A Dependable Portland Cement

An Unblemished Record for
six years speaks for itself

Wolverine Portland Cement Company
Coldwater, Michigan

W. E. COBEAN, Agent, Chamber of Commerce Building, Chicago



ONE GRADE—ONE BRAND

Alpha Portland Cement

The Recognized Standard
American Brand

General Offices: EASTON, PA.

SALES OFFICES:

German National Bk. Bldg., PITTSBURGH. Builders Exchange, BUFFALO
Builders Exchange, BALTIMORE. Board of Trade Bldg., BOSTON
Marquette Building, CHICAGO. St. Paul Bldg., NEW YORK.
Harrison Building, PHILADELPHIA Nat'l Bank Bldg., SAVANNAH, GA.



CHICAGO "AA"

1,000,000 Barrels Annually

Highest Quality

THE BEST THAT CAN BE MADE

Factory at Oglesby, near La Salle, Ill.

On C. M. & St. P. R. R. C. R. I. & P. R. R.
C. B. & Q. R. R. by Switch.
I. C. R. R.

MANUFACTURED BY

CHICAGO PORTLAND CEMENT CO.

No. 108 La Salle Street, CHICAGO, ILL.

HYDRATED PORTLAND LIME



IS IDEAL FOR

**Waterproofing
Concrete Blocks**

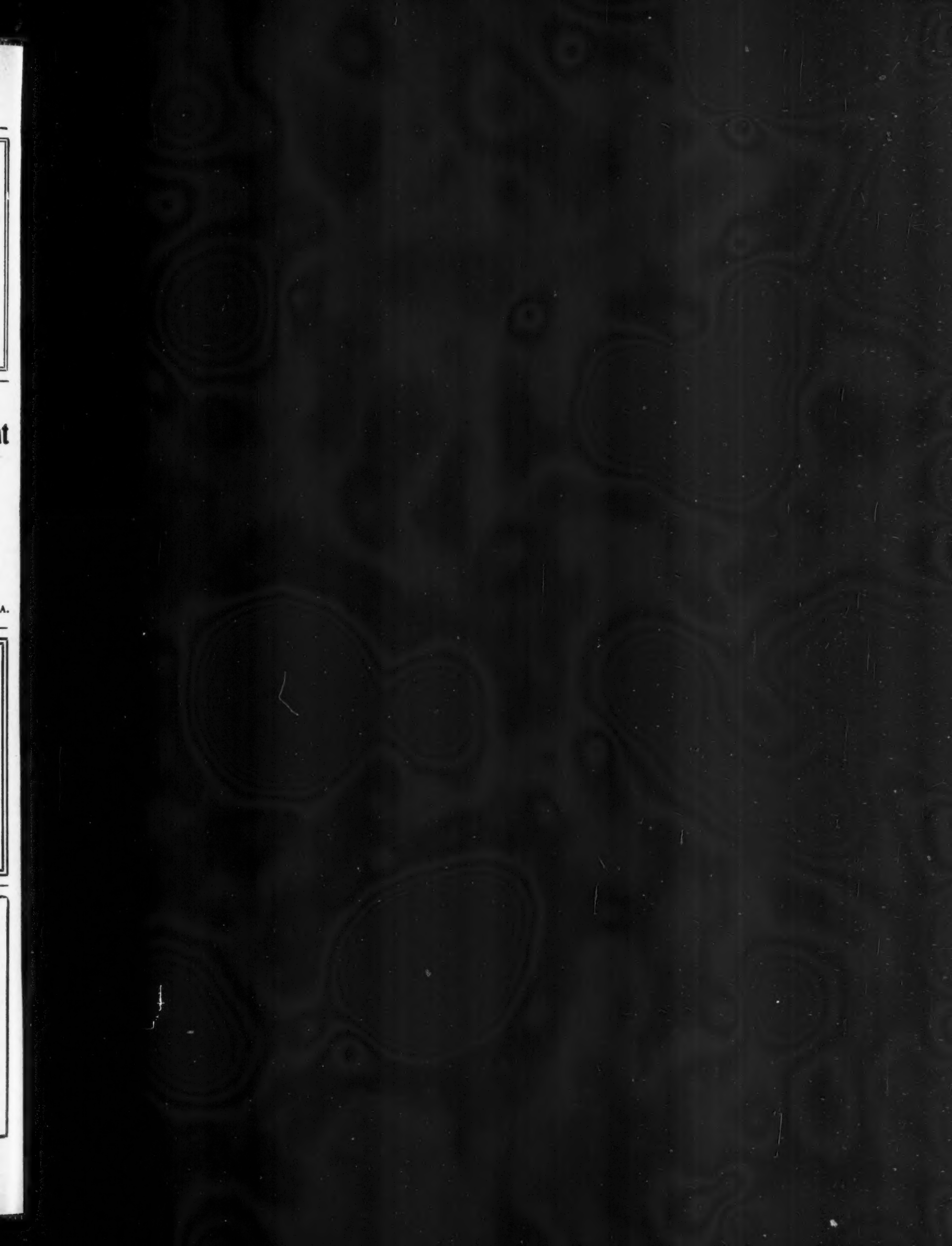
SAVES MONEY. TRY IT.

—FOR INFORMATION AND PRICES, WRITE—

CHICKAMAUGA CEMENT CO.,

Sole Manufacturers.

CHATTANOOGA, TENNESSEE



Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Volume VIII.

CHICAGO, ILL., MARCH 22, 1909.

Number 9.

ECONOMICAL STORAGE FOR HEAVY GOODS.

Enterprising Supply Concern Develops New Type of Warehouse in Reinforced Concrete Which Can Be Used for Coal, Crushed Rock, Sand, Gravel and All Other Materials Handled in Bulk.

Economy in handling large quantities of heavy materials is the principal business of the builders' supply man everywhere. Safety from fire and other risks or damage to goods in the warehouse make up another factor of importance that is ever present. The way these problems are solved in each establishment decides, to a very great extent, the amount of profit that the conduct of the business yields to the owners.

Reinforced concrete construction, on account of its tremendous strength, stability and complete fire safety, makes the ideal material for such establishments, and C. W. Hull, the enterprising supply man of Omaha, Neb., has developed the most complete storage proposition for heavy materials to date. At the same time economy of handling coal and similar materials is brought to its minimum. The great plant illustrated in this article was built for the C. W. Hull Company by F. B. Burness, concrete constructor, of Omaha, Kansas City and Wichita.

This type of storage for coal would be equally applicable to the storage of crushed rock, sand, gravel and all similar materials that are used in very large quantities and invariably handled in bulk. Well designed reinforced concrete storage pockets really cost little more than the prevalent wooden construction, requiring a great many heavy timbers. Their

permanent character and the elimination of fire risk is just that much to the good. It is a suggestion that may well be considered by the crusher men who contemplate improvements as well as retailers who handle this class of goods constantly.

In Omaha, the Nebraska metropolis, where the East stops and the West begins, there is nearing completion this mammoth coal and building material warehouse built of steel and concrete, which, when ready for occupancy, will spell "Economy" with emphasis.

It has excited no little curiosity and has been viewed with admiration by many advocates of substantial construction—with which Omaha abounds—and declared a success by those who realize its possibilities as a time and labor-saver.

This warehouse is being built on a fifteen-acre tract on the dividing line between Omaha and South Omaha, from which thousands of consumers of coal and building material in both cities can be quickly supplied. The idea was conceived by C. W. Hull, the owner. The preliminary plans were laid by him and were worked out with the assistance of one of Omaha's leading architects.

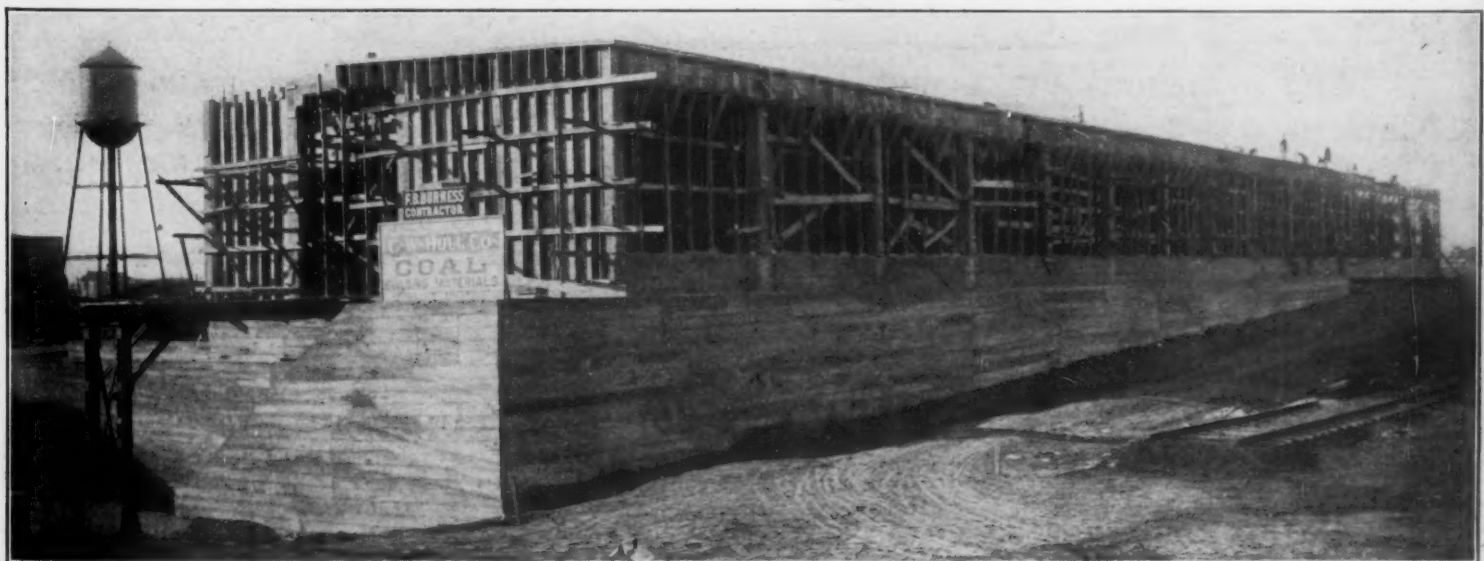
The warehouse will be completed by April 1, this year, and occupied by the C. W. Hull Company, of which Mr. Hull is president and general manager.

The company has been in business in Omaha seventeen years, and is now the largest, most progressive wholesale and retail dealer in coal and building material west of Chicago. The company has five men constantly soliciting business in the cities of Omaha, South Omaha and Council Bluffs, and covers regularly with a strong force of traveling salesmen the states of Nebraska, Kansas, Iowa and South Dakota.

The steadily increasing business of the firm has made the building of additional and larger quarters—a modern warehouse—a matter of necessity, and it was thought that whatever it did should be done on a large scale, with a view to permanency; something in which to store a season's supply of Portland cement and other perishable building materials and thousands of tons of coal. The immense structure now nearing completion will fill a long felt want and reduce the cost of handling very materially.

This building has a total floor space of 31,500 square feet. The main building, which will be used for the storage of coal and bulk building materials, is 350' long by 60' wide, and is divided into thirty gravity storage bins, each with a capacity of 350 tons, or a total maximum capacity of something over 10,000 tons. These bins have sloping bottoms, converging to the arch of a tunnel, which in many re-

(Continued on page 49.)

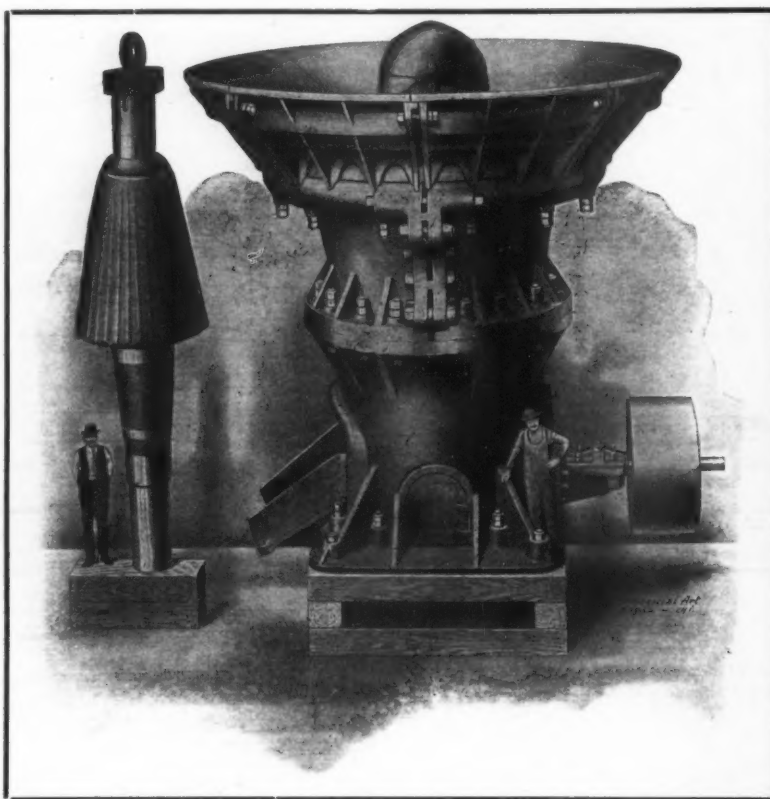


THE NEW REINFORCED CONCRETE STORAGE AND WAREHOUSE OF THE C. W. HULL COMPANY, OMAHA, NEB.

POWER AND MINING MACHINERY COMPANY

The United States Government Orders Mammoth McCully Crusher

What is
good
enough
for the
United
States
Government
is good
enough
for you



Write
to-day
asking
for our
Catalogue
No. 4 R.
Machinery
for
Rock
Crushing
Plants

The Isthmian Canal Commission have just placed an order with us for a Mammoth McCully Crusher with 36 inch opening and four No. 6 McCully Crushers. This order is secured against all competition and proves the superior merits of the McCully.

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First National Bank Bldg.
NEW YORK
115 Broadway
SALT LAKE CITY

Works
and General Office
Cudahy, Wis.
Suburb of Milwaukee

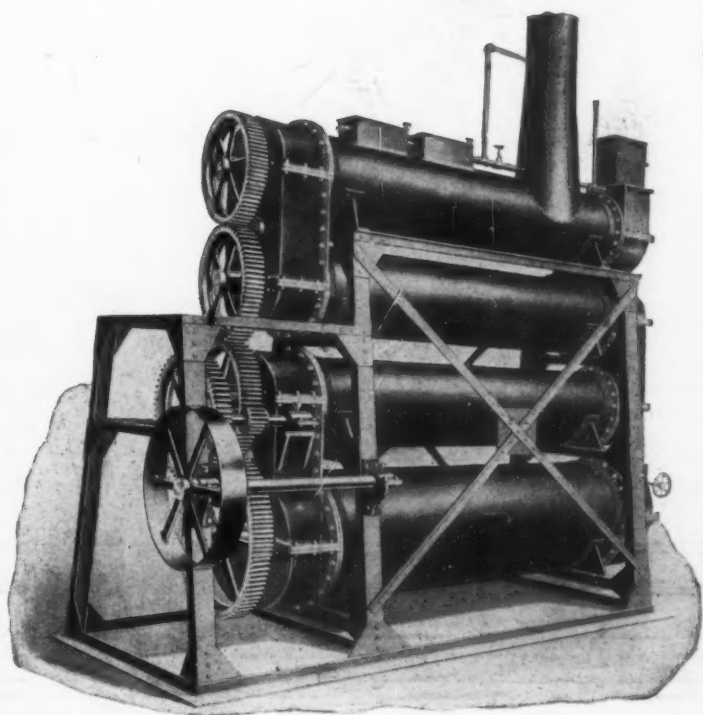
Sales Offices

SAN FRANCISCO
Sheldon Building
EL PASO, TEXAS
City National Bank Bldg.
MEXICO CITY

Tell 'em you saw it in ROCK PRODUCTS

Bulletin No. 28

Hydrating Lime

THE KRITZER WAY

Who have kept their plants in operation during the dull times? *Those who Hydrate.*

Who are the most progressive lime manufacturers you know? *Those who Hydrate.*

Who has the business trade that you wish you had? *Those who Hydrate.*

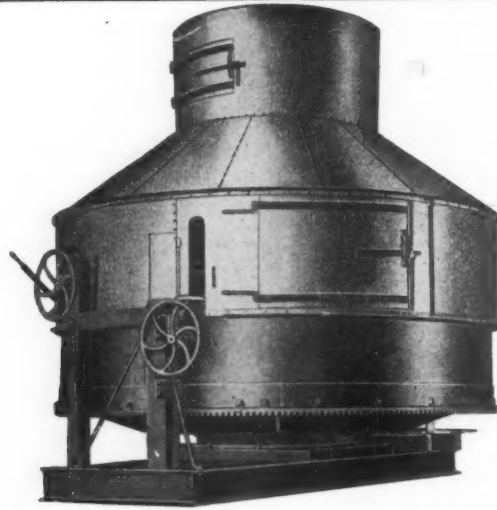
It only takes us about three months to build a plant for you. Why not place your contract with us, so we can have plant built and in operation for the coming season's business?

With our Vacuum Process we are in position to guarantee a perfect chemically pure Hydrate, and to retain the original plasticity of your lime; no swelling or bursting of sacks. Can any other process guarantee you this?

EXPERIENCE — We have been connected with the construction of over thirty plants and no two alike. Every one adapted to local conditions.

Our continuous process is the only process that has proved successful in hydrating a High Calcium and Magnesium Lime.

THE KRITZER COMPANY,
17th & Western Ave., - CHICAGO



The Clyde Hydrator

is the accepted standard of highest efficiency, economical operation, positive results and general all around serviceability in hydrating machinery

There are more of them in use than all others put together

They have proven their merit under all conditions

We will furnish full information, booklets and interesting data on your request

"We like to answer questions"

CLYDE IRON WORKS

Manufacturers

DULUTH, MINN.

Tell 'em you saw it in ROCK PRODUCTS.



CEMENT PLANT
CHANUTE, KAN.

Daily Capacity
2500 Barrels



ASH GROVE LIME & PORTLAND CEMENT CO.

KANSAS CITY, MO.

MAKER OF

Ash Grove Portland Cement

—SUPERFINE—

High Grade White Lime

"THE BEST ON EARTH"

WE FURNISH LIME IN "Unbustible" Steel Hoop Barrels



LIME WORKS

Ash Grove
Galloway
Everton
Carthage
Greenfield

Mo.



Daily Capacity 2500 Barrels

George W. De Smet

SOLE DISTRIBUTOR

Berkshire Snow White Portland Cement

Which can be used for all Outdoor and Indoor
Work where a Permanent Pure
White is Desired

and [the Celebrated WATERPROOFING COMPOUNDS

SYMENTREX

CONCRETE AND BRICK COATING, ANY COLOR

DEHYDRATINE

DAMP AND WATERPROOFING PAINT

HYDRATITE

WATERPROOF COMPOUND

This Compound makes Concrete Impervious to Water,
Beautifies and Waterproofs Surfaces and
Structures from Cellar to Roof.

[OFFICES:

317 CHAMBER OF COMMERCE, **Chicago, Ills.**



Over 60,000 Barrels

Nazareth Portland Cement

Used in Street Paving Work in Philadelphia During 1908
by the Filbert Paving and Construction Company.

CHARLES WARNER COMPANY

Sales Agent

Executive Offices, Wilmington, Del.

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Philadelphia

1 Madison Avenue
New York

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Boston

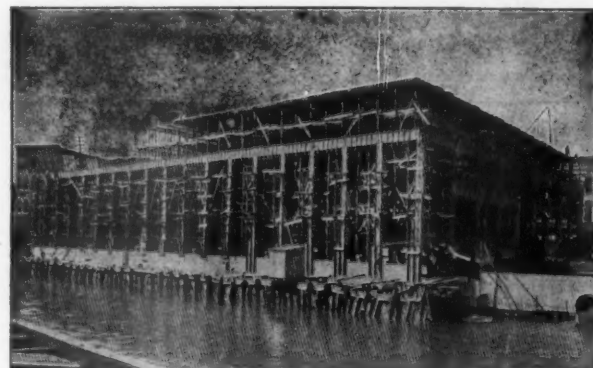
Tell 'em you saw it in ROCK PRODUCTS.



Medusa Water-Proof Compound

Makes all Concrete Watertight

The foundations and floor in Basement, all of cement, in the
Bostwick-Braun warehouse, Toledo, O., here illustrated, con-
tain Medusa. Write for pamphlet describing its use.



Write for samples of our Pure White Portland Cement.

Do not accept a substitute, as there are many adulterated
compounds on the market.

Sandusky Portland Cement Co.

SANDUSKY, OHIO

The Ironton Portland Cement Co.

Manufacturers of the

Celebrated Limestone Brand of Portland Cement

Used by the Railroads in Kentucky, Ohio, West Virginia, and Virginia during the past five years. Cement as finely ground as any on the market. Guaranteed to pass all the standard specifications.

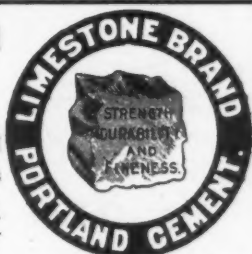
Plant located at Ironton, O., within easy access to seven States, namely, Ohio, Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina.

Shipments via the N. & W. Ry., C. & O. Ry., C. H. & D. Ry., D. T. & I. Ry., or Ohio River.

Write for Prices

The Ironton Portland Cement Co.

Ironton, Ohio



"ANHYDRA"

The Perfect Waterproofing for All Kinds of Concrete Work

Thoroughly demonstrating experiments prove that this waterproofing preparation is the most economical and efficient thing of the kind ever offered on the market. It is permanent and constant in colors of the finished product, because it is made of natural materials of basic character that are unchanging. Permanent as the rock of ages. Quotations in any quantity.

Anhydrous Pressed Stone Co.

TELEPHONE MAIN 5278

134 Washington Street

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THAT THE CAPILLARY ATTRACTION OF CEMENT SURFACES CAUSES INCIPIENT DISINTEGRATION

has never been questioned. Is your building capillary positive or capillary negative? The best method of obtaining impermeability, uniformity and attractiveness is by the use of



Bay State Brick & Cement Coating

which fills the pores and gives a uniform color, thus doing away with the dull, monotonous blue grey of Portland Cement. THIS COATING IS FIREPROOF and bears the label of the NATIONAL BOARD OF FIRE UNDERWRITERS. Write for our book containing 100 illustrations, entitled: "How to Decorate and Protect Cement Surfaces." Free on application to

WADSWORTH, HOWLAND & CO., Inc.

84 Washington St.
Boston, Mass.

Branch Office: 156 Fifth Ave.
New York City

DUCK BRAND



TRADE MARK

Weather-Proof Colors FOR Concrete or Stone

A perfect filler and finish combined, which leaves the surface with a beautiful dull finish that is absolutely waterproof. Not affected by acids, alkalis, intense heat or cold. Not an oil composition. One coat all that is required to make surface absolutely impervious to moisture. Applied by dipping before block has left manufacturers' hands, or by painting or spraying after the work is erected.

Large range of colors, which can be blended, making all shades and tints.

Its water-proofing and coloring qualities enter into the stone and become a part of it.

It prevents efflorescence in concrete work.

Most inexpensive as well as most efficient water-proof coloring on the market to-day.

Samples sent free of charge upon request.

Made only by THE BILLINGS-CHAPIN Co.

WM. S. HOTCHKISS

Sales Agent

1509 Manhattan Bldg.

Chicago, Ill.



A Dawn of a New Prosperity


PEIRCE CITY WHITE LIME

THE QUALITY LIME

Brings prosperity to those who buy it, because it is the whitest, purest and strongest lime in the world, and sure to give satisfaction. Our barrels are made of the best cooperage, bound by steel hoops that do not break. Write us at once for prices.

PEIRCE CITY LIME CO.

Peirce City, Mo.



Amatite ROOFING

**"THIS IS
THE ROOFING
THAT NEEDS
NO PAINTING"
BECAUSE IT HAS THE
REAL MINERAL SURFACE**

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Pittsburgh Cincinnati Kansas City Minneapolis New Orleans London

Amatite is an improvement over painted roofings, having a **real mineral surface** imbedded in pitch—making a kind of flexible concrete.

This mineral surface needs no painting. The water-proofing material, Coal Tar Pitch, is the greatest enemy to water known. It is the base of many waterproof paints. Only in a paint the pitch is diluted and made into a thin film, whereas the Amatite waterproofing is **solid pure Pitch**—two layers of it. It would take something like a dozen coats of pitch paint to equal in thickness that upper sheet of pitch in which the Amatite mineral surface is buried. And under that heavy sheet of pitch is a layer of wool felt, and under that another sheet of pitch, just as thick as the outer one. And below them all is another layer of strong felt. That makes two roofs in one.

If the storms wore away the mineral surface and dug through the pitch and destroyed the felt, they would still be only half way through. And if the weather then removed the next sheet of pitch, you would still have left a final layer of felt—nothing more or less than an ordinary smooth-surfaced roofing which could keep off the rain very nicely if painted every year or two.

But as a matter of fact, the weather never gets past that mineral surface securely gripped in its matrix of pitch.

The mineral surface is there to stay. No painting—no bother—no further expenses after the roof is once laid.

We should be glad to send you a free sample of Amatite, and you can see for yourself how much better it is than the smooth-surfaced kinds.

Address our nearest office.



OLDEST

Concrete Roofing Tile Machinery

Manufacturers in United States

Europa and New Era Concrete Roofing Tile

Handsome, Sanitary,
Enduring, Economical

The crowning triumph of mechanical skill and genius

Costs less than any other Roofing Material, presents a much handsomer appearance; outwears all other Roofing.

"THE ROOFING TILE WITH ARCHITECTURAL STYLE"



Europa and New Era Concrete Roofing Tile, Showing Different Size and Form of Tile

Made in practical sizes; all colors; not affected by heat or cold; does not absorb the carbonic acid of the atmosphere; will not radiate heat. Lowers Insurance Rates. *The Manufacturing of Concrete Roofing Tile* is one of the most profitable industries in the country. We Build Roofing Tile Machinery. Information cheerfully furnished. Write for catalogues.

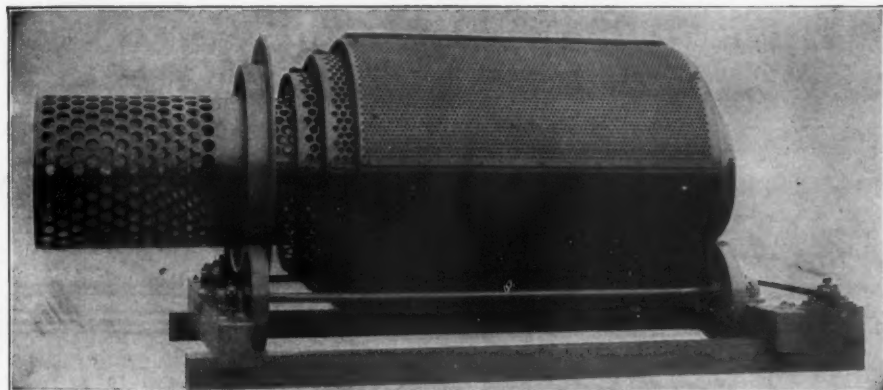
THE AMERICAN CEMENT ROOFING CO.

623 Columbus Savings & Trust Building

COLUMBUS, OHIO

Tell 'em you saw it in ROCK PRODUCTS.

JOHN O'LAUGHLIN'S SCREEN



made solely by Johnston & Chapman is the

ONLY SCREEN

on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals, gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the O'Laughlin installed

NOW

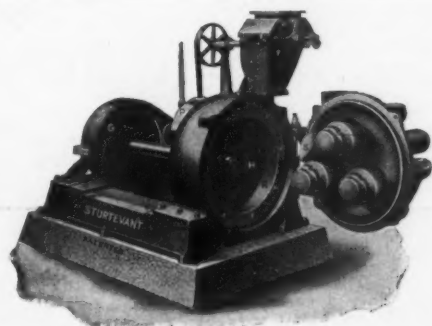
will from the moment it starts give a better and larger product, and a big interest on your investment in continuous saving in cost of repairs, renewals, and power. For particulars, address:

JOHNSTON & CHAPMAN CO.

1333 to 1345 Carroll Avenue, CHICAGO, ILLINOIS

Perforators of Sheet Metals, Flat, Cylindrical, and Conical Perforated Screen Plates for Quarries, Mines, Reduction Works, Mills and all Industrial Purposes.

The advantages of these screens are described in detail in a circular which WE WILL MAIL TO ANY ADDRESS. Mr. John O'Laughlin, the inventor, has designed many notable improvements in rock-drilling, quarrying, crushing and screening machinery, and uses these improved screens in his own crushing plants, which others have declared "to be the most perfect in existence in every detail." The O'Laughlin Screen is an important factor in the most modern and perfect stone-crushing plant.



A RING-ROLL MILL

working in connection with a

NEWAYGO SCREEN

makes the simplest and most economical rock-grinding plant yet produced.

Feed, 1½ inch and Finer. Product, from 16 to 100 Mesh.

SEND FOR CATALOGUES Nos. 77 AND 79 in which is shown its superiority in

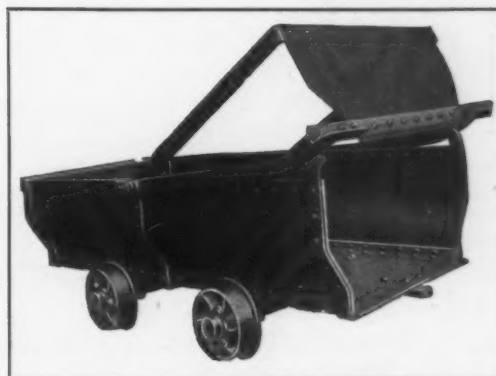
**ACCESSIBILITY
ECONOMY
EFFICIENCY**

STURTEVANT

MILL COMPANY
Boston, Mass.

New York
Pittsburgh

Chicago
St. Louis



ALL STEEL END DUMP QUARRY CAR.

We build these cars in capacities ranging from 1 yard to 2 yards, any gauge desired.

If you are in the market for any kind of CAR, STONE SKIP, ELEVATOR, REVOLVING SCREEN let us know your wants; we can fill them.

Our catalogue No. 10-R shows a few of our supplies.

H. B. Sackett Screen & Chute Co.

4212-4226 State St., Chicago, Ill.

Tell 'em you saw it in ROCK PRODUCTS.

HIGH CALCIUM HYDRATE

The Best for Every Purpose where Chemically Pure Lime Is the Indispensable Element

Sand Lime Brick

Difficulties can be Simplified and Overcome by the use of our Correctly Hydrated Lime.

Cement Blocks

can be made more waterproof, cheaper, and of lighter color by the use of from 20 to 40% of pure hydrate free from magnesia. This substitutes the same amount of cement and does not impair the strength of the block.

Water Softening and Filtration

in municipal and industrial plants. Our hydrate increases the efficiency of operation, enables exact determination and offers numerous economical advantages.

Commercial and chemical requirements call for pure lime. We furnish a product of 98% analysis.

Kansas City

MARBLEHEAD LIME CO.

Chicago

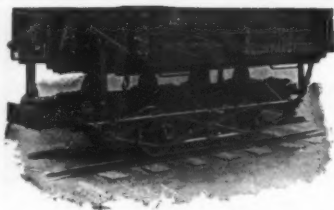
The Kelley Island Lime and Transport Co.

CLEVELAND, OHIO.

Tiger Brand White Rock Finish the best known and smoothest working Hydrated Lime manufactured.

WRITE FOR PRICES

THE LARGEST LIME MANUFACTURERS IN THE WORLD.



"CONTINENTAL" DUMP CARS

Our Dump Cars are used on most of the large rock and dirt moving operations throughout the United States and Canada.

Continental Car and Equipment Co.

Works; Highland Park, Louisville, Ky.

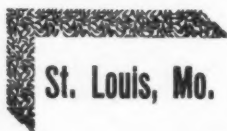
New York, 17 Battery Place



CHARLES W. GOETZ LIME & CEMENT CO.

MANUFACTURERS OF AND DEALERS IN

Glenwood Lime, Banner Brand Louisville Cement, Portland Cements and Building Materials.



St. Louis, Mo.

FOWLER & PAY

Brown Hydraulic Lime, Austin Hydraulic Cement, Jasper Wall Plaster, Brick, Stone.

CEMENT WORKS: Austin, Minn.
PLASTER MILL: Ft. Dodge, Iowa.
WAREHOUSE: Minnesota Transfer.

MANKATO, MINN.

Flint Pebbles and Buhr Stone
Linings.

French Buhr Mill Stones.
Solids and Built.

J. M. Charles,
Sole Agent.

59 Pearl St., NEW YORK, N. Y.

Bolting Cloths, Dufour Swiss
Silk, Fine Wire Cloth.

Mixing and Sifting
Machinery.

NEW JERSEY LIME CO.



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MANUFACTURERS
OF

MAFFEE,
N. J.

BUILDERS' LIME

CHEMICAL LIME

HYDRATED LIME

HAMBURG, N. J.

Tell 'em you saw it in ROCK PRODUCTS.

The Ohio and Western Lime Company

WORKS AT
Huntington, Indiana
Marion, O.
Gibsonburg, Ohio
Pistoria, Ohio
Sugar Ridge, Ohio
Tiffin, Ohio
Genoa, Ohio
Limestone, Ohio
Lime City, Ohio
Portage, Ohio
Lucky, Ohio
Bedford, Ind.

MANUFACTURERS OF AND WHOLESALE DEALERS IN

**Ohio White Finishing Lime, Ground Lime,
Lump Lime, Fertilizer, Hydrate Lime,
Cement, Plaster, Hair, Etc., Etc.**

**Capacity
8000 Barrels
Per Day**

MAIN OFFICE: Huntington, Ind. **Branch Offices:** Marion, O. and Toledo, O., 209-210 Chamber of Commerce Bldg.

A. & C. Stone & Lime Co.

MANUFACTURERS OF

CRUSHED STONE AND WHITE LIME

Total Capacity Crushed Stone 4000 Tons Daily

Plants: GREENCASTLE, IND.
RIDGEVILLE, IND.
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Lime Kilns at
Portland, Ind.

General Office: 17 North Penn. Street,
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Western Lime & Cement Co.

Pabst Building, Milwaukee, Wis.

Largest Manufacturers of **Magnesian White Lime** in the United States

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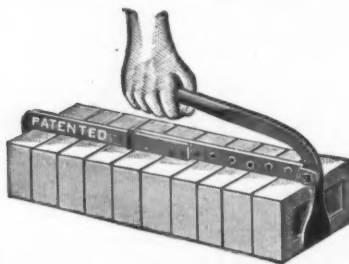
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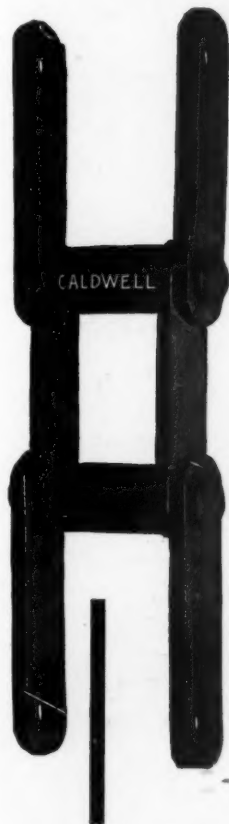
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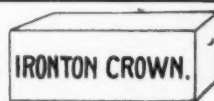
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The Cummer Continuous Gypsum
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See Other Advertisements, Page 60

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CHEERFULLY FURNISHED ON APPLICATION.



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DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

Volume VIII.

CHICAGO, MARCH 22, 1909.

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Communications on subjects of interest to any branch of the stone industry are solicited, and will be paid for if available.
Every reader is invited to make the office of Rock Products his headquarters while in Chicago. Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions and Mexico.....\$1.00
In the Dominion of Canada and all Countries in the Postal Union..... 1.50
Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.
Advertising rates furnished on application.

Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879

Rock crusher operators have pretty generally adopted the system of selling their product by the ton. It is the only fair and standard plan.

Sand reclaimers are now considering the improvement of their equipment for the coming season.

Automobile trucks for delivering builders' supplies is the next improvement now being tried out. Likely they will be plentiful one year hence.

Plaster contractors have the organizing idea developing amongst them. They recognize the possibilities of expanding their business into broader lines of activity, with more work and more money for both the workman and the boss.

Our "business agents" down at Washington want to act promptly in that little tariff matter if they care to win the highest regard of the industrial contingent, which now amounts to the whole thing in promoting prosperity. The President has this same idea, too.

The retailer of building materials is ready for the season to start. Just give us a few bright days in a row and the way the teams will get at the deliveries will justify the confidence of the prosperity boomers, for everybody in the business seems to have a big fat order book.

There is a plan afoot amongst the concrete interests of New York to hold a grand cement show at Madison Square Garden next January. It is not a new suggestion, but the pronounced success of Chicago's permanent exhibition held in February has awakened new interest in the project. With the stalwarts of the industry in the saddle there is little doubt about its success. In fact the machinery manufacturers and other exhibitors tell Rock Products that they are willing to pledge support to a big show in New York. The executive committee of the National Cement Users' Association have this matter under consideration.

A careful examination of every exhibit at all of the cement shows discloses the fact that no new ideas have been introduced since the culminating invention of concrete structural tile that was exhibited for the first time one year ago. True there have been many improvements and new patterns of established machines were the prevailing features of all the shows. Rock Products is aware of several innovations and improvements not yet completed, that will come to light in the near future, but the exhibits indicate that the right line of ideas in machines have been developed, and the further perfection of models now known and approved makes a fixed and more solid basis of doing business. There will be smaller but more certain profits in concrete machinery in the future.

Cement continues to be the most interesting commodity in the supply line. Barely a scratch has been made in the records of the past compared with the volume of consumption that is to come. The main and only trouble is that still the builder does not know how to use and apply cement to his needs so as to take up the ever growing production.

Lime putty does not make good mortar unless it is sufficiently ripened as putty. When there is no time to wait, or no place to keep the putty, it is better to use hydrated lime, which is a ready made putty for instant use, or about that. It is just as well to begin now to consider the use of the hydrated as the modern way of handling lime intelligently and economically.

The improvements upon the internal waterways must not be neglected. To defer indefinitely such important, popular and universally profitable work is inexcusable. The conservation of flood damages, the development of water powers, besides the cheap transportation facilities necessary for further commercial progress will pay all the cost by the time the great engineering proposition reaches completion. Every citizen of this Republic has an interest in the matter.

As soon as the rock crusher operator adopts reinforced concrete for the construction of permanent storage pockets he will appreciate a relief from the drain of costly timbers that wear out more rapidly all the time with that increased output. Besides in providing his own plant with the best obtainable, he sets the example of using up the waste product. Concrete is cheaper to the crusher man than others, because he only has to buy cement and steel fabric for reinforcement.

The treatment of exterior surfaces of concrete buildings by the use of cement plasters is a study just challenging attention in America. In Europe this branch of the industry has been developed into a fine art. In plastering technique, we, in this country, are very remiss. Not every mechanic is fit to handle the finishing processes. It will take several well-equipped demonstrating schools to secure the progress in this direction that the industry needs. What utilitarian institution of learning will be the first to provide for this important study?

Mortar mixing is the one great problem of all builders, in spite of the fact that every practical man knows how to mix the "best kind" as well as the cheapest. Now a cheap mortar is desirable as a matter of course, but a good mortar, better than those most commonly used, is a necessity that can't be dodged very well. It requires no expert to find the need of better mortar for bricklaying, but it is still very difficult to find a satisfactory remedy.

Every contractor and engineer—every supply man and machinery builder, has a system full of enthusiasm as a result of the trade conventions in various parts of the country. These men are all expecting a good business year to open up right away quick. In fact, they are all impatient for the start. There is a whole lot in getting started right, so let every fellow take a hold upon first orders with a good will toward other interests that come in contact with his own operations. It helps to strengthen the situation to recognize associate interests, like brigading regiments before going into battle.

The rousing meeting of the New Jersey Masons' Material Dealers' Association suggests a broader scope for the organization of the supply men. Besides New Jersey, there are state associations in Ohio, Illinois and Connecticut, and local associations in most of the larger cities. The further organizations of states and districts, all affiliated with the National Association upon a representative basis would be an ideal plan, and it can be worked out with very little difficulty. There is no use waiting or putting it off, once the condition is recognized that this is the desideratum.

EDITORIAL CHAT

Corry Doyle has joined the sales department of the Maryland Portland Cement Company, Baltimore, Md. He will sell the "Security" brand as the right hand man of Harry B. Warner, the secretary and sales manager of the company. Mr. Doyle has had much experience under the most favorable tutelage in the best surroundings in the highest knowledge of actual, physical and practical concrete construction work. He has worked in the well known Spackman laboratory at Philadelphia, and has for several years been favorably acquainted with the cement trade. With all the qualities that go to make up the gentleman and the salesman, Mr. Doyle is thoroughly qualified and deserving to make a great success of his end of "Security."

H. M. Fetter, of the Hartranft Company, of Philadelphia, says that he observes the Southern customers of his concern getting busy in a healthy kind of a way. Spring orders in the North are as yet taking hold slowly.

The Whitehall Portland Cement Company have established their New York office at 35 South William Street. Messrs. Robinson and Geddes, well known members of the Whitehall selling force, are on deck to take care of their customers.

H. L. Goodwin, of the Halliwell Cement Company, Kansas City, Mo., was a Chicago visitor recently.

A. H. Lauman, of the National Mortar and Supply Company, Pittsburg, Pa., honored our sanctum with a visit last week. He says that his Banner hydrate is steadily gaining popularity, because there is quality to it all the while.

The Executive Committee of the National Cement Users' Association held its first meeting since the Cleveland Convention at the Engineers' Club in New York on March 11. President Richard L. Humphrey and almost a full board were present. Several plans were suggested with regard to holding the next convention of the association in New York next January. All of the officers are inclined to favor the project.

A. A. Pauly, Youngstown, Ohio, inventor of concrete structural tile, was a recent visitor in New York. He reports very active business in the machinery line with parties who are going into the manufacture of tile in an extensive way. Also that his tile plant is blocked off with orders.

Chas. H. Claiborne, who sells Mt. Savage fire brick and the whole line of refractories for the Union Mining Company, of Baltimore, hurried through Chicago the other day. He says business is rushing in his line, but he is taking care of all customers.

J. H. Burton, of the Burton Powder Company, has taken up headquarters in the Fisher Building, Chicago. His territory is the whole west, and he has speed enough to cover even that much distance.

L. V. Thayer, president of the Peerless Cement Brick Machine Company, of Minneapolis, is sojourning in the East amongst the scenes of his boyhood, near Albany, N. Y.

W. L. Taylor, of the Casparis Stone Company, Columbus, Ohio, and many other places, was seen in Columbus a few days ago in company with Chas. T. McKenzie, of the Georgia Rough and Cut Stone Company, of Augusta, Ga.; and Wm. F. Bowe, a prominent paving contractor, in the same Southern city. They are all heavily interested in the rock crushing business.

W. H. Ham, M. Am. Soc. C. E., has resigned as chief engineer of the General Fireproofing Company to take up the department of concrete engineering with the firm of Hollis French & Allen Hubbard, consulting engineers, Albany Building, Boston, Mass., specialists in hydraulic and power development work, heating, ventilating, electrical engineering and concrete structural design.

The Columbus (Ohio) Concrete Construction Company has been incorporated with a capital stock of \$50,000 to do a general concrete construction business. Roston Medbery, E. B. Taylor, J. B. Mohler, R. T. Fisher and S. B. Wright are the incorporators.

The Chicago Architects' Business Association, a body composed of the leading architects of Chicago, issued a note of warning to both union men and material dealers. The statement, which was issued by Argyle E. Robinson, secretary of the association, declared that we are just emerging from a pronounced financial depression and that this was an inopportune time to endeavor to raise prices either of labor or materials.

Architects at a recent meeting declared that many prospective house builders were having the plans held up in the hope that the prices of materials would come down.

"In our opinion," says the statement, "all the interests in the building industry should unite to give encouragement to building projects at this time instead of subjecting them to the discouraging influences of labor controversies."

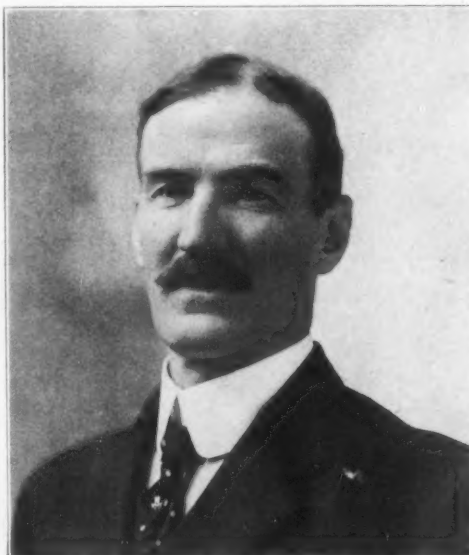
The recent bill sent to Congress on the revision of the tariff contains some interesting figures to the manufacturers of rock products. Following are the proposed changes suggested:

Roman, Portland and other hydraulic cement, in barrels, sacks or other packages, 8c per one hundred pounds, including weights of barrel or package; in bulk, 7c per one hundred pounds; other cement, 20 per centum ad valorem.

Lime, 5c per one hundred pounds, including weight of barrel or package.

Plaster rock or gypsum, crude, 50c per ton; if ground or calcined, \$2.25 per ton; pearl hardening for paper makers' use, 20 per centum ad valorem.

Pumice stone, wholly or partially manufactured,



CORRY DOYLE, OF THE MARYLAND PORTLAND CEMENT CO., BALTIMORE, MD.

\$6 per ton; unmanufactured, 15 per centum ad valorem.

Clays or earths, unwrought or unmanufactured, not specially provided for in this act, \$1 per ton; wrought or manufactured, not specially provided for in this act, \$2 per ton; china clay or kaolin, \$2.50 per ton; limestone rock asphalt containing not more than 15 per centum of bitumen, 50c per ton; asphaltum and bitumen, not specially provided for in this act, crude, if not dried, or otherwise advanced in any manner, \$1.50 per ton; if dried or otherwise advanced in any manner, \$3 per ton; bauxite, or beauxite, crude, not refined or otherwise advanced in condition from its natural state, \$1 per ton; Fuller's earth, unwrought and unmanufactured, \$1.50 per ton; wrought or manufactured, \$3 per ton.

D. C. Patterson, the energetic secretary of the Oklahoma Cement Users and Contractors' Association, has started the ball rolling in his state in grand shape. Already he has secured a number of new members for the association. Among the first things done to boom the Oklahoma association was to send a representative to the Northwestern Cement Products' Association meeting. The members were thus enabled to secure information about cement and appliances in the Northwest. Next year's convention and exhibition was boomed among the machinery manufacturers.

Charles W. Leavitt, Jr., New York, architect and engineer of the grandstand that is to be erected at Schenley Park, Pittsburg, for the Pittsburg Baseball Association, has awarded the Raymond Concrete Pile Company, of New York and Chicago, the contract for

placing Raymond concrete piles in the foundations of the structure.

Thomas O. Horton, president and general manager of the New York and Richmond Gas Company, has awarded the Raymond Concrete Pile Company of New York and Chicago the contract for placing Raymond concrete piles in the foundations of a gas holder that his company is about to erect at Clifton, Staten Island, N. Y.

Two thousand cubic yards of concrete will be used for building the retaining walls for the grandstand for Pittsburg's new baseball park. The main stand will be divided into four general units, the first a great amphitheater of concrete steps starting a few feet above the level of the diamond and enclosing it on the first and third base sides and back of the home plate.

Exhibit Store of Concrete.

CHICAGO, ILL., March 19.—A building of reinforced concrete that will cost \$220,000 is to be put up at 1510-1514 Wabash Avenue by B. J. Rosenthal. The building will be used for exhibiting furniture. It will be eight stories and will occupy a lot 70x170 feet.

Enjoyable Trip to Gary

On March 19 about 600 friends of the Universal Portland Cement Company enjoyed a very agreeable inspection trip to the company's mills at Buffington and Gary, Ind. Mr. Beck had personal charge of the trip, which was held for the purpose of acquainting the American Railway Engineering and Maintenance of Way Association with the company's mills. The visit was a most complete one; starting at 9:30 in the morning the party arrived at Buffington at 10:15 a. m., where a general inspection of the cement plant there was made, from whence they proceeded to Gary, where the works of the Illinois Steel Company were gone through. After a 25-minute stop at Kirk, the party, tired but enthusiastic over their day's visit, arrived in Chicago at 5 in the evening.

Immense Amount of Work on Hand.

NEW YORK, March 22.—Work for 500,000 idle men! What a happy ring that line has here in New York. Not only will it help to relieve the strained situation here, but the whole country will feel the effects of it. Further than that, the statistics are on hand to show that more building is contemplated than since the glorious year of 1905. In Manhattan and the Bronx there is \$35,000,000 worth of work to be done, which caps every record of former prosperous years. Skyscrapers, apartments, dwellings of every style and class are on the contractors' books here, close to 3,000 in number. With the hue and cry of the owners clamoring in their ears for completion, the contractors are at a loss where to secure the material and labor, and their trouble is now, not to find work but to find labor.

Concrete Railroad Ties.

The Italian Government has ordered 300,000 concrete railroad ties, which are now in course of construction. A few thousand of such ties, ordered for experimental purposes, were constructed by the Gabellini Company some years ago, and have been used on the railroad from Castellamare-Adriatico to Ancona. As a result of the trials to which the ties were subjected, a new design, to be employed in executing the present large order, will replace the old. The principal change will, it is understood, be found in the introduction into the concrete mass of a larger number of the reinforcing metallic bars, of reduced diameter in the new design of ties. The cost of a concrete tie is estimated at about \$1.20.

Death of Capt. James A. Davis.

BOSTON, MASS., March 16.—Capt. James A. Davis died at his home on Lincoln Road, Lexington, yesterday from heart failure.

In 1889 he established the house of Deming, Davis & Co. He later bought out his partner, Col. George B. Deming, and entered into partnership with Henry N. Fisher, of Waltham, under the firm name of James A. Davis & Co., cement dealers.

Captain Davis was one of the first to recognize the possibilities of American Portland cement made by the rotary kiln process, and introduced into New England the first cement made by that method.

In addition to being prominent in the Ancient and Honorable Artillery Company, Captain Davis was well known in Masonic circles, having taken the thirty-third degree. He was a Shriner, a Knight Templar and a past commander of the Massachusetts consistory. He was also an associate member of Edward W. Kinsley Post 113, G. A. R., a member of the Boston Athletic Association, Pine Tree State Club, Point Shirley Club and the Ten of Us Club, composed entirely of Ancients.

The Exhibit Expense.

In every new industry where it is necessary to do a lot of educational and promotion work there is danger of slopping over on some lines by making excessive expense accounts which the business will not stand, to the detriment of individuals and the industry as well.

The concrete industry has made such rapid strides and the efforts put forth have so successfully placed it before the world as the greatest material for construction that the cement shows have come into the field by the dozens, as well as journals and alleged advertising schemes with or without merit and without limit.

Cement manufacturers, machinery manufacturers, publicity manufacturers, everybody in the industry that believes in promotion have been spending their money like drunken sailors—indiscriminately.

Publicity is like whiskey; it is all good, but some is much better than others, and as the Dutchman says, "Too much is enough." In other words, in the concrete industry today we are having too many exhibits. We have passed the breaking of the sod stage, and have come into the era where cement is a staple product.

The Chicago Cement Show was a grand success. Cement shows in Minneapolis, Oklahoma City, Cleveland, Kansas City, Des Moines, Lincoln and Toronto were more or less successful, but the cement manufacturer and machinery manufacturer cannot stand the racket. It is costing too much to exhibit with all of them.

It is a well known fact, where a cement show is held in a city, that a large number of the citizens learn more about cement and how concrete construction is put together, but the cement manufacturer and the concrete machinery people cannot stand the strain of a show in every city when other means at less cost will get them the same result.

We might just as well look this thing square in the face, and work it out along business lines, and benefit the greatest number of interests at the minimum expense.

Twelve months ago ROCK PRODUCTS urged on the retailers of building material, cement manufacturers and others interested in this industry to arrange their annual pilgrimage so that their meetings would be held at times and places so they could all attend one or two of these shows and improve their information thereby. Local permanent exhibitions in a Builders' Exchange are a good thing to familiarize people in and out of the trade with building materials. Two great cement shows would count for more than many little ones and make it possible for all to attend at a reasonable expense. With one held in Chicago each year and one in New York everyone would have a chance to visit the big cities, enjoy the theaters, as well as spend a pleasant week, as we have known retailers and contractors to do on many occasions.

The National Cement Users' Convention at Cleveland was very successful. The exhibit feature in connection therewith was fairly successful, but had it been held in Madison Square Garden it would have been a tremendous success. This association has made good, and it will do much more in the way of educating the engineer, the contractor, the manufacturer and the user of cement, and must be maintained; but the exhibition proposition should be cut down to not more than three great shows. We say this without prejudice. We speak plainly, knowing that some of our friends in local sections will feel that we are doing them an injustice, but we believe this to be for the general interest of the cement and concrete industry. It is necessary to intelligently curtail the expense.

If some one can work it out so that three shows can be held each year we know that the industry will be benefited. But will the industry be benefited if every local section pulls off a show without intelligent guidance?

There are now in prospect the following shows for 1910: New York City; Chicago; at some place where the National Cement Users meet; Lincoln, Neb.; Minneapolis, Minn.; a place to be selected by the Iowa Cement Users; Oklahoma City, and Denver. Now if Memphis, New Orleans, San Francisco, Atlanta, Cleveland, Louisville and Cincinnati will take a notion, as Toronto did this year, to hold a show, it will take a chunk of the capital stock of almost everybody interested to cover them all.

Let the officers and directors of cement shows, retail dealers and others interested in the promotion of the building material interests get together now within the next thirty days and outline plans that will effectively cover the country without conflicting dates.

This article is suggested as the result of conferences with various manufacturers who make these exhibitions possible by the expenditure of their money, time and energy. One manufacturer puts it so tersely we feel it would be worth while for our readers to scan his letter:

"The show just held at the Coliseum in Chicago demonstrates that the cement user, architect and en-

gineer can see a great deal more for his money when attending one reputable exhibit than he can by running around to the various smaller shows. The Cement Products' Exhibition Company, of Chicago, was instrumental in obtaining special railway rates to their city, and as a whole their efforts must be commended.

"This company feels that considerable expense can be saved to the exhibitors by making one other large exhibit each year in the west, and that various journals of the trade can be influential in securing this result. We are writing all other editors to this same effect."

Engineering on the Panama Canal.

Lieut.-Col. G. W. Goethals, chief engineer of the Panama Canal, was a recent visitor in Chicago. He was invited to attend the meeting of the Ways and Means Committee of the Chicago Association of Commerce and lay before them in brief form the crucial problems of the great isthmian undertaking. Colonel Goethals said:

"The great problem of the Panama canal is the control of the Chagres river, and the cutting through of the continental divide. These are the two problems that the French did not fully realize until work had progressed so far as to lead them to the conclusion that something must be done in order to complete a canal for the benefit of navigation. The result was that in 1887, after seven years' work, they concluded to construct a high level lake and summit canal level 130 feet above the sea. The various schemes that had been proposed for the control of the Chagres river were impracticable, and they gave up, with the machinery in use at that time, the great cut through the continental divide that the canal required.

The problem that confronted the American engineers in 1905 and 1906, when the United States acquired the canal property, was no longer the continental divide—the improvements in machinery had solved that. The great problem was in the control of the Chagres river. This is a stream with a water area of 1,200 square miles. It is a stream through which a rainfall of 130 inches in nine months causes rises of twenty-three feet in twelve hours. It is a mountain torrent. The French in the final solution given to it by the new company concluded that the only practical solution was a lock canal with a dam at Bohio, about twenty miles from the Atlantic coast and the construction of a lock to take the waters of the river and the construction of a spillway to take care of the overflow.

"The new company in 1894 found a large portion of the sea level part of the canal extending to Bohio already completed, and the adopted Bohio as the site for the dam. When the United States investigated this in 1901 they adopted the solution that the French had already adopted, and placed the dam at Bohio, creating the Bohio lake to control the Chagres river, and dam the water back through the continental divide. In 1905, when the sea level canal was again agitated, investigations were made of the Gatun dam, and the minority report advocated the construction of the dam at Gatun, creating a lake eighty-five feet above the sea level, the difference to be overcome by a flight of three locks at Gatun, the descent on the Pacific coast side to be by means of three locks also.

"Considerable discussion has taken place recently that the present plan of the canal is a mistake, that the Gatun dam foundations will not support the superstructure, that the foundations for the locks are not tight, that the entire lake will pass away through a subterranean stream which must undermine the foundation of the dam. The report of 1906 showed the existence of certain water bearing strata in the gorge across which the dam is to be constructed. There was considerable discussion a year ago which led me to conclude that further investigation of the foundations were necessary, and we began them last January. Instead of sand and gravel, which the original report stated were to be found, we found that instead of simply having sand and gravel these were cemented with clay; instead of a river deposit we have a moraine deposit that is impervious to water.

"The attitude of the original board arose from the fact that when they made their investigations they sank a tube until the rock was reached and the material was brought to the surface by water pressure which, naturally, dissolved the clay. On the other hand, we sank a pit and we found the strata as they actually existed and in these foundations we found the gravel we found the sand, but the material was so firmly packed together as to be absolutely impervious to water. We took material as it existed and subjected it to pressure in a cylinder. The increase in the water pressure that will result will not force the water through any of the soil in the foundation. We made holes in the foundation, and put sal ammoniac in the upper stream and wires in the lower stream, so that when the sal ammoniac leaked through it would cause an electrical current. We never got that current.

"The foundations for the Gatun dam are all right and the dam is of such massive formation that the slope is more gradual than the slope of any of the hills in that part of the country. The same is equally true of the lock foundations. The sea level advocates say nothing to you about the locks to control the difference in tide, which is 18 inches at the Atlantic side and 22 feet on the Pacific side. Shipping cannot stand such a current. The sea level canal will give you a channel 150 feet wide for half its length and 200 feet the rest of the way; the lock canal gives you a channel 500 feet wide for 300 feet, one one-quarter of the canal is 1,000 feet in width.

"The sea level canal advocates fail to tell you about the dam which they would have to construct, a dam with a water pressure against it at least twice the head that we have against the Gatun dam. The foundation is just as treacherous, and we have in addition to the Chagres river twenty-two streams with beds above the level of the sea canal, and instead of a wide open channel, which you have been led to believe a sea level canal would be, you have a narrow, tortuous ditch of nineteen miles of curvature with currents from three to four miles an hour. For some of these streams the sea level people propose no method of control, although the beds of these streams are from ten to twelve feet above the

level of the proposed canal, and the water rises eighteen feet in a day.

"There is one thing that we can assure you—that the lock type can be built cheaper, in less time, easier and safer navigation can be had than with a sea level canal, and it gives a better control of the Chagres river. In a sea level canal it is uncertain when it would be completed, but the lock canal will be completed January 1, 1915, and steamers can go from New York to San Francisco in twenty days."

Contract Awarded.

TOLEDO, O., March 20.—S. J. Pickett has been awarded the contract to do the brick and concrete work and supply the fireproofing for the new post-office building at Madison Avenue and Thirteenth Street. The contract was given by the Charles McCaul Company, of Philadelphia, general contractors.

It has also been announced that the Toledo Builders' Supply Company would furnish all the cement, sand, crushed stone, lime and brick that will go into the building.

Concrete Bridges to Replace Wood.

EVANSVILLE, IND., March 15.—An official of the Henderson Route stated recently that the company was planning extensive improvements for the road between Henderson and Louisville, Ky. The head engineer has been at work on observations and estimates of the cost of substituting cement work where wood is now in use in bridges, culverts, etc.

The management is now waiting for favorable weather before putting their gangs to work. An expenditure of approximately \$75,000 is contemplated for these improvements alone.

The road will also be ballasted as soon as the rock crusher can be gotten in action.

Will Open Stone Crushing Plant.

FORT SCOTT, KAN., March 3.—The rock crusher of the Fort Scott Stone and Construction Company will be started within a few days, after a shutdown of several weeks, and will be run regularly through the summer, as many thousands of yards of rock will be needed for the large paving contracts to be completed during the summer months in Fort Scott.

More street paving is to be done in Fort Scott this summer than has been done here in any previous year, and all of the rock turned out from the crusher will be used on the streets, several of which are to be paved with macadam.

Will Operate Stone Crushers.

WINONA, MINN., March 16.—The work of placing the two new stone crushers in the bluffs alongside the Chicago and Northwestern road just beyond the three arches between Stockton and Lewiston has been commenced, and the stone crushers will be in active use by the first of May and possibly a little earlier.

The new plant will have a crushing capacity of 600 to 700 cubic yards a day, and it will require some quarrying to keep the machines supplied with stone for crushing. It is estimated that from fifty to seventy-five hands will be given employment at this plant.

Awarded Large Contract

SOUTH BEND, IND., March 15.—C. H. Defrees, of this city, dealer in cements and mason supplies, was just awarded the contract for furnishing H. G. Christman & Co., contractors of this city, 10,000 barrels of Omega Portland cement, to be used in the construction of the J. M. Studebaker ten-story office building to be erected in this city this season. This building is to be completed about January 1, 1910.

Secures Large Contract.

The Elmhurst-Chicago Stone Company, Elmhurst, Ill., has received the contract recently for 300,000 yards of crushed stone for the Chicago and Northwestern Railway, equal to thirty cars a day. Fifteen thousand dollars' worth of new machinery will be installed.

MADISON, WIS., March 18.—McNulty Brothers, of Chicago, have the contract for laying the concrete floors of the east wing of the Capitol Building. Marquette cement is to be used.

WAUKESHA, WIS., March 10.—The contract for the concrete curb and paving work here has been awarded to the Marquette Construction Company, of Chicago, who will use Marquette cement in the work.

APPLETON, WIS., March 12.—Fielding & Shepley, of Minneapolis, Minn., have the contract for the concrete paving, curb and gutter work in this city. Marquette cement has been specified.

FROM OUR OWN CORRESPONDENTS

CLEVELAND AND VICINITY.

CLEVELAND, O., March 20.—Next month will doubtless see an advance in cement prices in this territory, if present rumors are realized. Cement is selling here at \$1.27 for western mill product and 5 cents higher for same quality from eastern mills. The drop in the price of steel, while it has influenced building operations favorably, has caused an uneasiness among material men as to what the outlook will be. It is agreed, however, that cement is selling very cheap now, and that an advance must come with the opening up of the building season.

Another big building is planned in the new shopping district east of East Ninth Street. William M. Brown, ex-lieutenant governor of Pennsylvania, has leased 150 feet on Euclid Avenue just east of the Cleveland Trust Company's new building, and is preparing to build a fifteen-story structure for a prospective tenant. The building will be of steel frame, heavily fireproofed with concrete, reinforced concrete floors, and brick or tile walls. It will cost upward of \$1,000,000, although the builders hope to save a snug sum on the steel frame. Possession of the property will be taken July 1. Two old residences and a couple of stores will be torn down to make way for the improvements. Mr. Brown has recently bought considerable other valuable property in Cleveland.

The King Bridge Company, of Cleveland, has been awarded the contract for the twelve-story steel frame for the new building for the Brotherhood of Locomotive Engineers, to be built at Ontario and St. Clair Avenue. A two-story brick building 200 feet square has been torn down during the past month and work on the erection of the steel begins April 1. Contracts will be let for the balance of the superstructure early in April.

Samuel D. Wise, of the Atlantic Refining Company, has had plans prepared by Architect Albert Skeel for a \$65,000 store and office building at East Sixty-fifth Street and Euclid Avenue. It will be four stories high, with interior of reinforced concrete and exterior of stone and brick. Contracts will be let about April for the main structure, excavating already being under way.

Two expensive flat buildings have been announced during the month. George W. Hale will spend \$85,000 on a twenty-one-suite apartment house on East Ninetieth Street near Euclid Avenue. It will be four stories high and 141 feet deep. There will be a private garage for tenants. George H. Steffens plans to spend \$50,000 on an eight-suite apartment building on East Seventy-seventh Street south of Euclid Avenue. The interior and the porches will be of reinforced concrete. Both of these buildings will be strictly fireproof.

The Carey Construction Company has been awarded the contract for rebuilding the Euclid bowling alleys at a cost of about \$35,000. No danger of fire in the future, as building is to be of reinforced concrete. Plans have been prepared by the Osborn Engineering Company. The building was formerly occupied by an athletic club and later converted into a rink and bowling alley.

Henry G. Slatmyer has been awarded the contract for the erection of the new Kirby Building on Euclid Avenue next to the Guardian Bank Building. It replaces a structure destroyed by fire some weeks ago and will be fireproof, consisting of brick, tile and concrete. It will cost about \$100,000 complete. Architect John B. Knapp, of Wilkesbarre, Pa., prepared the plans.

The Carey Construction Company has started work on a new reinforced concrete school for St. Stanislaus Church at Lorain, O., to cost about \$40,000. The structure will be three stories high and 65x80'. The style of architecture will be Gothic. The building will be ready for occupancy next fall. The foundations are already under way and the other work will be pushed as rapidly as weather will permit.

Sanitary stock yards, to be built largely of concrete and cement, are planned for the West Side. An elaborate sewage system is to be laid out, and the stock yards built over it. An initial step will be taken this spring, when a stock yards hotel 70x140' in size, will be built by John B. Foster. The building will be in the neighborhood of the present stock yards on West Sixty-fifth Street. Sanitary and fireproof are excellent conditions in the construction of any building.

Voters of Cleveland will pass on a bond issue of \$1,000,000 next month for the elimination of grade crossings on the Pennsylvania. That sum will constitute the city's portion of elevating the present tracks twenty feet in the air on concrete pillars and retaining walls. Beginning April 15 the Nickel Plate will start on the elimination of ten grade crossings in the East End. The cost is estimated at \$2,000,000. Each street will be crossed with an attractive concrete bridge. As soon as the Nickel Plate separates its grades, the new Belt Line will proceed at an expenditure of about \$5,000,000, with the road construction from Newburg to East Cleveland. A score or more of heavy concrete bridges will be required in this work. The company has already spent over \$400,000 on concrete work.

The State of Ohio is building a unique armory at Camp Perry, O., where the national rifle ranges are located. It is being constructed in sections, each part being poured on the ground in forms and then hoisted into place. The building is two stories high and will have concrete floors and a fireproof roof.

The Hunkin Brothers Construction Company, of Cleveland, has made a formal bid for the building of the new plant at Winnipeg, Canada, for the National Transcontinental Railway Company. One shop alone will be 823x205' in size. There will be a dozen more shops. The plant complete will cost several million dollars.

Crowell & Sherman will do the concrete work on the new fireproof garage building for the Babcock Electric Company on Euclid Avenue at East Sixty-sixth Street. The building will be 93x180' and will have the largest floor area of any garage in the State of Ohio, and will be strictly fireproof throughout. Plans for it were prepared by the Vorce Engineering Company, of this city.

It is proposed to spend \$250,000 of the city's money this year at the municipal farm at Warrensville on new hospital buildings for tubercular patients. The buildings will be in mission style, with walls of brick, covered with stucco. The interiors will be of concrete finish, so they can be easily cleaned.

The city will pave about thirty-three miles of streets this year. Over 100 contracts for various streets have already been let and grading is in progress. The county will expend \$2,300,000 for 115 miles of country brick roads, at an average cost of about \$20,000 a mile. These roads will connect many of the rural districts with the city by means of splendidly paved thoroughfares. The county already has 130 miles of paved roadways.

To hide an unsightly septic tank at the section where the big intercepting sewer enters Lake Erie the city will erect the coming summer an attractive concrete building, which will look something like a park shelter house. As there is no odor from the plant a small park is to be laid out on the two acres owned by the city at that point. The tank itself is of concrete. A tall chimney will be built to carry away any fumes which may arise. A number of trees will be laid out and by means of the use of concrete the spot will be made sanitary and attractive.

The city of Lima, O., will spend about \$1,000,000 this year on public and private enterprises. These include a \$250,000 hospital for the insane, to be of concrete; a \$100,000 interurban depot; \$200,000 on street paving; \$25,000 on sewers and the balance on miscellaneous work.

H. M. Hanna will erect a \$250,000 residence on the Lake Shore Boulevard next summer from plans prepared by White, McKim, Mead & White, of New York. Contracts will be let about April 1. Plans have been on view at the office of Curtis Walton, Rose Building, for the past month.

Fifty-five miles of sidewalks were laid by the city of Cleveland and its citizens during the past year. Two-thirds was of cement, the balance of flagging. About half was done by private contract and the balance by the city.

Wilbur J. Watson, engineer of this city, has completed a reinforced concrete bridge over the Vermillion River at Wakeman, O. The bridge has a central span of 145 feet and a length over all of 220 feet. The roadway is eighteen feet wide and is planned for heavy loads. Schillinger Brothers, of Columbus, built the bridge.

John A. Kling, general manager of the Cleveland Builders' Supply Company, has been granted a new trial in his \$200,000 damage suit against the owners of the Garfield Building. About two years ago Mr. Kling was hurt by an elevator. Three weeks ago a jury awarded him a verdict of \$6,000, although two hours before he had been offered \$10,000 to compromise.

The Osborn Engineering Company, of Cleveland, has prepared plans for a new reinforced concrete grand stand for the Toledo Baseball Company. It will be two stories high and 323x75' in size. The bleachers will be 375x60' in size.

George Rackle, aged 72, pioneer artificial stone manufacturer, died a few days ago at San Antonio, Tex. For many years he had conducted an art stone manufacturing business in this city. It will be continued by his sons, Herman, George and Ernest.

BUFFALO AND VICINITY.

BUFFALO, N. Y., March 17.—Upward of \$500,000 will be spent in Buffalo this year on the elimination of grade crossings. A great quantity of concrete and steel will be used in the contracts at Bailey Avenue and William Street, and on Delaware Avenue, Parkside Avenue and Colvin Street.

It is reported that the Welland (Can.) Cement Company has gone into liquidation.

C. A. Cockroft, of Binghamton, N. Y., has been awarded a contract to build a concrete culvert across Trout Brook in that city. Crossett & Lloyd will build a concrete wall across the Brandywine Creek in Binghamton.

A plant is being built for the Grape Products Company at North East, Pa. Ten thousand barrels of cement has been purchased of dealers there, to be used in the construction of the main building.

The popularity and durability of concrete are indicated by the following report from Binghamton, N. Y.: "Concrete sewers will replace brick trunk sewers in the future for Binghamton, where trunk sewers are constructed without lot connections. City Engineer John A. Giles has satisfied himself that concrete sewers can be constructed at much less cost and are more durable than brick. If the Fourth Ward trunk sewer had been built of concrete instead of brick, enough could have been saved in the cost to complete the sewer."

The W. W. Mitchell Construction Company, with headquarters at Niagara Falls, Ont., has been incorporated with a capital of \$20,000. The Niagara Falls, Ont., men interested are: W. W. Mitchell, J. F. Langley and A. S. Murray.

The asphalt walks on the Court Street bridge in Binghamton, N. Y., will be replaced with concrete. Last year an experiment was tried in laying concrete walks on the bridge, and it was found to be highly successful. The problem of bridge sidewalks has thus been solved, and in the future this will be used exclusively in that city.

E. M. Graves, of Cleveland, Ohio, was the lowest bidder for excavating work in Buffalo River. His bid was fourteen cents per cubic yard for excavating and \$12 per lineal foot for pile work. The work involves an extensive contract.

The War Department will spend \$668,703.11 on Black Rock Harbor, Buffalo, during the present fiscal year, which closes on June 30. Of this sum \$502,012.49 will be for excavation, \$133,940.62 for rock work, and \$32,750 for contingencies. During the year ending June 30, 1910, it proposes to spend \$1,335,406.23 on Black Rock, divided as follows: \$1,008,748.72 for excavation, \$257,187.18 for lock work and \$69,470.33 for contingencies. At Oswego, N. Y., it is proposed to spend up until June 30 next the sum of \$26,263.81, and during the year following \$100,000.

The Common Council of Schenectady, N. Y., has decided that at an early date a concrete culvert shall be built over a creek in that city.

City Architect Beck, of Buffalo, has drawn plans for two new additions to Buffalo schools. These additions will cost \$85,000 and \$80,000, respectively.

An official statement showing the total value of the production of the Province of Ontario, Canada, for the year 1908 has been issued. The figures include the following: Portland cement, 2,022,877 barrels, \$2,417,769; gypsum, 10,389 tons, \$20,778; lime, 1,850,000 bushels, \$357,050; mica, 368 tons, \$73,586; phosphate of lime, 881 tons, \$7,048; pottery, \$50,310; stone, \$457,000; brick, tile and other clay products, \$2,600,000.

The Farr-Fisher Company, which will do a general contracting business, has been incorporated in Buffalo with a capital of \$10,000.

The plant of the American Radiator Company in Buffalo will be increased. The extension will be a warehouse of iron and concrete construction, 200' square, with a wing 99x115'.

It is reported that the Pittsburg, Binghamton & Eastern Railroad Company, which was placed in a receiver's hands late in 1908, is to be organized again at an early date, and that work is to be resumed on the line between Clearfield, Pa., and Binghamton, N. Y., a distance of 232.5 miles.

A new sewer system will be built at Medina, N. Y., at a cost of \$50,000.

City Engineer Brown, of Elmira, N. Y., will prepare plans for a mammoth sewerage disposal plant in that city. It will probably be necessary to have a system of drainage sewers to carry storm water, and also a system to carry house sewerage.

The Monarch Engineering Company has been organized in Buffalo. The company has \$25,000 capital, and proposes to do a general contracting and engineering business. The incorporators are Harry I. Wait and B. I. Wait, of Buffalo, and Thomas H. Hennessey, of Oswego, N. Y.

The Buffalo Dredging Company is resuming operations on the Black Rock Harbor ship canal work, which it has under way in Buffalo.

Architect J. H. Considine, of Elmira, N. Y., has prepared plans for a four-story brick block, to be erected by Snyder Brothers in that city.

The approximate value of the buildings for which permits were granted in Toronto, Canada, in January and February, 1909, was \$1,233,060, an increase of \$499,967 over the value of the permits in the first two months last year.

At Albany, N. Y., Senator Allds has introduced a bill to appropriate \$175,000 for improvements at the state hospital for the treatment of incipient pulmonary tuberculosis at Raybrook, N. Y.

An official building report for February, 1909, made in Rochester, N. Y., shows applications for building permits involving more than half a million dollars, and a phenomenal increase over February, 1908.

W. L. Stoddart, New York architect, has placed before the board of supervisors at Schenectady, N. Y., plans for the proposed county building, to be erected in that city. The cost of the proposed building is not to exceed \$400,000, which includes the cost of building, furnishings and architect's fees. Concrete piles are specified for the foundations of the structure. The general construction of the building will be the same as originally contemplated, steel frame being used with fireproof terra cotta arches, fireproof walls surrounding all vaults and record rooms. The floors and ceilings to the vaults are to have reinforced concrete construction.

Frank Gilbert, of Montreal, Canada, has secured the contract from the Canadian government for the submarine rock excavation and dredging for improving the middle channel in the River St. Lawrence, between Brockville and Kingston, Canada.

The department of railways and canals of Canada has recommended that a big sum be expended in deepening the Welland Canal.

The Hygeia Refrigerating Company, at Elmira, N. Y., will build a new storehouse, at a cost of \$80,000. The building will be constructed of reinforced concrete and hollow tile. It will be 150x54', and from seven to ten stories in height.

KANSAS CITY.

KANSAS CITY, MO., March 20.—Building is progressing in a very satisfactory manner in many lines, building permits showing a steady increase, as compared with last year.

A good demand is reported for all kinds of building material. The brick men are especially busy, and the demand has been so urgent that the prices have advanced \$1 per thousand since the first of the year, and contractors will be lucky if they are able to get all the brick they want at this advance, the price now being \$7 per thousand, on board cars, for common brick. Face brick have also advanced from \$1 to \$2 per thousand.

Cement is holding a steady price, and the plants are all reporting a good demand and a little trouble with their shipping. They are having no trouble getting cars, however, and ought to be able to make reasonably prompt delivery, as orders can take their turns as rapidly as the plants can produce the goods. Railroads are reported to be buying more cement and are expected to be good customers from this time forward.

Plaster people are reporting a good demand, with favorable weather conditions.

W. A. Merriam, vice-president of the George A. Fuller Construction Company, in a recent interview said: "Kansas City is to have the best era of building in its history within the next two or three years. Our company built the National Bank of Commerce Building at Tenth and Walnut Streets, and we are just completing the ten-story Sharp Building at Eleventh and Walnut Streets. Last October the site of the Sharp Building was a hole in the ground, and we have constructed this building in five months, having it ready for occupancy the first of this month. I'll tell you why Kansas City is to have a big building era. The future of the city as one of the greatest inland cities in the country is so well established that capital is being attracted here from all over the world. We are building in seventeen cities of the country and it is our business to know building conditions. Every month several thousand home-seekers are added to the territory paying tribute to Kansas City. Your bank clearings show that you are doing the business and that you are already taxed for business houses in which to do business and, for homes for the growing population. We have

commenced work on the new passenger station for the Chicago & North-Western Railroad in Chicago. Our contract is to complete the \$5,000,000 structure by October, 1910. There is no good reason why the proposed Kansas City terminal should not be ready for use within two years after the franchise is granted."

Work has just begun on the eight-story reinforced concrete building of the Orear-Leslie Investment Company, which is located just south of the Dwight Building, on Baltimore. It will be but 31' wide.

J. C. Gates is now planning the erection of a five-story fireproof building on the southwest corner of Tenth and Grand, the walls to be constructed to carry seven additional stories. The material and style of construction has not yet been decided, but is in the hands of A. B. Anderson, an architect of the New York Life Building.

A three-story concrete building is being erected at 1505 Genesee Street for the occupancy of the *Daily Drivers' Telegram*. It will have a salmon colored brick front, and is to be built solid enough so the heavy printing presses can be operated up stairs.

White & Dreyfoos are soon to begin the construction of a hotel building 125x126', on Genesee at Sixteenth Street. It will be three stories high and made of vitrified brick.

The ground just west of the Dwight Building is to be graded at once and a six-story reinforced concrete building erected there by the F. P. Burnap Printing and Stationery Company, which has taken a 99-year lease on the property.

Wallace M. Ryerson and Joseph H. Stone have taken a 99-year lease on the northeast corner of Union Avenue and Santa Fe Street, and will have an eight-story reinforced concrete office and storage building erected there as soon as the plans can be prepared for same. The site is 100x120'.

Hugo Brecklein is soon to begin the erection of a three-story concrete store building at 1429 Grand Avenue. The foundations are to be prepared for a five-story building and two additional stories will be added later.

The death is reported in Leavenworth, Kan., of C. H. Suydam, seventy-seven years old, an old time contractor and builder of this city. He was in charge of the erection of the first building for the Armour Packing Company.

The Bonner Portland Cement Company reports that its plant is running full time now and has plenty of business in sight.

The Kansas City Portland Cement Company has practically completed the improvements to the plant, and in a few days will increase its production to 2,500 barrels per day. It has been able to keep pretty close up with its orders, in spite of the improvement work, and while several days behind with shipments just now, will soon be able to make immediate shipments.

O. J. Hill, vice-president of the Ash Grove Lime and Portland Cement Company, is spending the winter in California.

The cement orders now being received by most of the plants all call for immediate shipment. It is evident that the dealers have held off with the hope that there would be a cut on cement, as that is what happened a year ago, but the market remains so firm now that they are ordering, and the fact that the goods are wanted without delay indicates that they waited to place their orders until they were forced to do so.

The Kansas City office of the United States Gypsum Company reports that the Swenson Construction Company is using its Eldorado brand of plaster on the fine, large hotel which it is constructing at Excelsior Springs, Mo.

D. E. Hostetter, sales manager of the Ash Grove Lime and Portland Cement Company, is out in Kansas for a short business trip.

C. C. Buxton, vice-president and general manager of the J. G. Garrison Building Material Company, of Oklahoma City, Okla., has been paying his Kansas City friends a visit this week. He reports ten reinforced concrete buildings under course of construction in his city at the present time, and that the prospects for a good business in the building line was never better, not only in Oklahoma City but in the entire state. He states that the contract for the new high school building will be let March 22, and it will also be of reinforced concrete. His company is agent for the Sunflower brand of cement of the United Kansas Portland Cement Company.

R. S. Giffillan has just been awarded the contract for thirty-five blocks of brick paving in Topeka, Kan. The paving is to be laid in two courses, the lower course with a cement filler and the upper course with a sand filler.

The city is now advertising for bids for about five miles of granitoid sidewalk, and it is planned to let all the contracts at one time.

Plans are being prepared by Root & Siemens for a

five-story fireproof building for Langston Bacon, to be erected at 1020-22 Walnut Street, to take the place of the building destroyed by fire a few weeks ago. It will have foundations strong enough to carry eight stories.

Mr. Eadie, of the Eadie Building Supply Company, has just returned from a vacation trip of several weeks' duration. This is his first vacation in about fifteen years.

Charles W. Reed has succeeded F. L. Joy in the management of the Kansas City Hydraulic Pressed Brick Company, and has thoroughly overhauled all four of the plants of the company in this city and is going to run them at full capacity throughout the year. There is a good demand for all they can produce at this time, and Mr. Reed expects to have little trouble in disposing of the output.

The cost of buildings for which permits were issued in this city in the month of February was \$839,525, this being a gain of \$308,400 over the same month of last year.

F. C. Mitchell is soon to begin the construction of a twenty-four-apartment flat at Twelfth and Garfield. Brick and stone will be used in the construction.

The Armour Packing Company is erecting a new four-story steel and concrete tank building, 145x120', at a cost of about \$50,000.

PHILADELPHIA.

PHILADELPHIA, PA., March 17.—There is a noticeable improvement in the general building supplies situation at this time. Considerable building work has already been started and only satisfactory weather conditions are awaited for extensive execution in this direction. Though the large concrete building jobs are a little slow in materializing, the operation work in small buildings promises well for summer and fall activity. Reports coming in from Baltimore, Md., testify to a livening up in the building trade there, while New York is quoted as somewhat slow as to encouraging developments in this line.

Among the big jobs in contemplation is a large factory building on the north side of Allegheny Avenue, west of Twenty-third Street, for Thomas Wolstenholme, Sons & Co. The building will occupy the whole square from Twenty-third to Twenty-fourth Streets.

It is generally understood that the Real Estate Trust Company, southeast corner Broad and Chestnut Streets, will erect a seventeen-story annex on the Chestnut Street side of the building.

Oliver Randolph Parry, architect, 1723 Chestnut Street, has prepared plans and specifications for twenty-four reinforced concrete two-story and attic houses, to be erected in the near future in a northern suburb. Buildings of this character in Philadelphia are a radical departure, and it is believed the move will soon be followed by other builders.

John R. Wiggins & Co. have a contract for a three-story building of concrete, 95x180, at the northwest corner of Twelfth Street and Washington Avenue, for John Wyeth & Bro., Inc.; Werner Trumbower, architect.

Charles L. Hoffman is preparing plans for a hotel at Fremont Avenue and the beach, Seaside Park, N. J., for the Seaside Park Hotel Company; cost, \$50,000.

Permits were obtained recently by John Stafford for two four-story housekeeping apartment houses, one 41x104 feet, to be erected at the southeast corner of Thirty-third and Clifford Streets; the other 41x84 feet, at the southwest corner Clifford and Natrona Streets. Total cost, \$140,000. Sauer & Hahn, architects.

Frederick C. Michaelsen recently acquired considerable land in the neighborhood of Butler, Pike and Eighth Streets, upon which he will erect 126 two-story dwellings, which will cost about \$300,000. This is the first installment of an operation of 400 houses to be built by Mr. Michaelsen in this section.

Charles E. Biddle will build fifty-three two-story dwellings at Harold, Twenty-second and Twenty-third Streets, to cost \$116,000.

Robert Killough has begun the erection of 144 two-story dwellings at Stenton Avenue and Chew Street, to cost \$275,000.

John Stafford will begin work immediately on 100 seven, eight and nine-room houses, on the block of ground between Twenty-eighth and Twenty-ninth Streets, Montgomery and Glenwood Avenues. The cost of the operation will be about \$275,000.

John G. Brown has contract to build a two-story factory, 60x150 feet, at Lansdale, Pa., to cost \$25,000.

The Master Builders' Exchange, 13 South Seventh Street, held its monthly social on February 27, and the large attendance is proof positive of the popularity of these monthly gatherings. At 12:30 p. m. a well-arranged luncheon was served, during which the New Delta orchestra, under the leadership of Prof. George A. Ehrenzeller, entertained the members and guests with some very fine selections from the

old masters. The exchange is with reason very proud of this orchestra, which is composed strictly of home talent. The leader is a son of the popular exchange member, C. H. Ehrenzeller, who is manager and financier of the orchestra. It was conceded by all who listened to this first performance that this organization of builders and kindred trades is as fortunate in its musical as its histrionic talent.

Franklin M. Harris, Jr., the new president of the exchange, made a short address after the luncheon, thanking the members for his election as their head, and calling upon all to render him their assistance in carrying out his work; he then, in a few appropriate words, introduced the speaker of the day, the Hon. J. Hampton Moore, congressman of Philadelphia, whom they all call "our own Hampy."

Mr. Moore impressed upon his hearers the fact that though every minute of his time before the closing of Congress was taken up, he could not resist the pleasure of attending this meeting, where he knew he would meet so many of his old friends. With his usual fluency he gave a little history of the immediate surrounding territory in the olden time, showing that its rivers and creeks had been the only means of conveyance, and that after the introduction of railroads they had been allowed to fill up and become disconnected. Mr. Moore gradually brought his subject to the present vital question of the Rivers and Harbors bill, the adoption of which would result in a valuable interstate waterway extending from Maine to Key West. The address was highly appreciated by all and upon motion, Mr. Moore, with a glowing spontaneity, was nominated by the exchange members as their candidate for the next president of the United States, which motion was heartily seconded by republican, democrat, socialist and the William Penn party, alike. What more could they do to show their gratitude to their "Hampy." It was then rationally voted that it is the sense of this exchange that the board of directors elect Mr. Moore an honorary member of the exchange. Among the interested visitors present were Frederick S. Underhill, president of the Lumbermen's Exchange, and D. Knickerbocker Boyd, president of the Philadelphia Chapter, A. I. A.

The Engineers' Club, 1317 Spruce Street, held its regular meeting on the evening of March 6, President W. P. Dallett in the chair. At this meeting the several amendments to the by-laws were adopted.

The following new active members were elected: St. John Chilton, 2225 Land Title Building; Arthur S. Garrett, Lansdowne, Pa., and M. D. Sidney Stiles, 1616 Pennsylvania Building.

Manton E. Hibbs, constructional engineer of the bureau of building inspection, and an active member of the club, read a paper entitled "Hammerstein as a Builder," which was illustrated by lantern slides.

A meeting was held by this club February 20, President Dallett in the chair, at which 105 members and visitors were present. The evening was devoted to a discussion, led by F. Herbert Snow, of Harrisburg, on "Topics Connected With the Disposal and Purification of Sewage."

Upon motion of Mr. Trautwine, the thanks of the club were extended to Mr. Snow for his valuable contribution to the discussion. At this meeting Mr. Washington Jones, active member, was unanimously elected to honorary membership.

The next meeting of the Association of American Portland Cement Manufacturers has been set for April 12, 13 and 14, and will be held at the Bellevue-Stratford Hotel, Philadelphia, Pa.

Percy H. Wilson, secretary of the American Portland Cement Manufacturers' Association, reports the outlook for cement encouraging, as extensive inquiries are coming in right along on subjects pertinent to the cement industries.

The Vulcanite Portland Cement Company, 1230 Land Title Building, reports big work a little slow coming in the boards, especially in the New York field, but is hopeful of a decided improvement in local trading when weather conditions are more propitious. J. B. Lober, president of this concern, also of the Association of American Portland Cement Manufacturers, is in California, taking a few months' respite from business cares.

Charles Warner & Co. are not inclined to quarrel with conditions. During favorable weather the influx of orders was very good. The opening of spring without question will bring activity in all building lines. Mr. Leslie of this house is making a tour of the nearby cities, sizing up the situation.

Philip S. Vollmer, Philadelphia representative of the Atlas Portland Cement Company, always an optimist, feels that he is justified in prognosticating good business as soon as the weather conditions permit. He reports things moving along satisfactorily.

The Alpha Portland Cement Company recently purchased the entire plant of the Buckhorn Portland Cement Company, the price of which is given at \$500,000. It is said the Alpha company will spend \$230,000 in improving the plant.

Since the reduction of freight rates on cement for exportation has been practically assured there is further effort being made to have the rate on cement for local uses reduced, to conform with the rates charged to Jersey City, N. J. The discrimination against Philadelphia has caused five leading trade organizations in this city to take the matter up, and it is understood the combined associations will formulate a brief, which is to be presented to the railroad companies carrying cement from the Lehigh Valley cement centers. Although no mention is made of cement associations or firms interested in this product, it is believed they are in thorough accord with the movement, but do not wish to appear as antagonizing the carrying companies. A committee of ten men representing the Board of Trade, the Bourse, the Commercial Exchange, the Maritime Exchange and the Trades' League, are making an investigation in order to obtain the merits of the case. Relative to the subject the following interesting decision was announced in Washington, D. C., on March 11: According to a decision of the Interstate Commerce Commission announced today "It is unlawful for railroads so to adjust their schedules as to force commodities into a particular city or port." The case was that of the Chamber of Commerce of Milwaukee against the Chicago, Rock Island and Pacific and the Chicago, Milwaukee and St. Paul railroads.

The Valley Sand Company, Wilmington, Del., was chartered under Delaware state laws on February 15; capital, \$25,000.

The Charles A. Sims Company was incorporated to do a general contracting business under New Jersey State laws on February 16; capitalization, \$50,000.

A charter was granted to the Standard Construction Company, New York, under Delaware State laws, on February 23; capital, \$50,000.

The Wilkesbarre Brick Company, Wilkesbarre, Pa., was chartered under Delaware State laws on February 26; capital, \$100,000.

The Development Company, to do a general construction business, was incorporated under New Jersey State laws on February 27; capitalization, \$100,000.

Tobias Ashe, aged 84, who helped to build the Pennsylvania Railroad, died at Wilmore, Pa., on February 23. He leaves nine children, forty-seven grandchildren and forty-three great-grandchildren.

Robert H. Montgomery, 66 years old, a well-known contractor and builder of Lewistown, Pa., died February 23.

Charles H. Wolfinger, a retired building contractor at Leitersburg, Md., died on February 23, aged 60 years.

Col. Elijah E. Myers, one of the most widely known architects in the United States, and a native of Philadelphia, died in Detroit, Mich., February 26. He was 77 years old.

Edward N. Perrine, who was connected with Walter T. Bradley Company, died March 6. He was 75 years old.

Joseph U. Ruch, a well-known contractor, died at his home, this city, March 7, aged 78. He was senior member of the firm of George W. Ruch & Co.

LOS ANGELES.

LOS ANGELES, CAL., Feb. 15.—F. O. Wyman, president of the Golden State Portland Cement Company, stated today that their Oro Grande cement plant would be in operation within the next month or six weeks. All the buildings are completed and ten carloads of machinery arrived at Oro Grande last week. Mr. Wyman says that the plant will be strictly up-to-date, and will have a capacity of 1,000 barrels of Portland cement per day. The plant will cost \$750,000.

W. W. Reed, who for some time has been associated with the Snyder Lime Company, is now with the Missal Lime Company.

The Southern Pacific Company is making preparations to start building machine shops and a big roundhouse in Santa Barbara, to cost about \$100,000.

Bids for the construction of a bridge over Warm Creek were opened at San Bernardino, Monday, and the contract let to the McIntyre Cement Company of Riverside on its bid of \$4,846.80. The same firm was also awarded the contract for five concrete culverts across Town Creek. E. R. Werdin & Co. of Los Angeles will put in a certain number of crosswalks for \$8,065.30. Bids for the macadamizing of several streets are about to be called for.

A. M. Kumler of San Jacinto is making preparations to establish a plant for the manufacture of cement pipe, etc.

Plans for reinforced concrete conduits to be constructed at the head of Fifteenth Street to the Bay on Newton Street have been submitted to the city officials for consideration. The purpose of the structure is to carry off the storm water from Switzer's canyon.

CHICAGO

CHICAGO, March 20.—With the brightest prospects that they have had to look forward to in many a year the cement men are eagerly awaiting the passing of the rains and snows, and the coming of the sun which makes building possible. The larger men in the trade have been loath until now to accept large contracts, but now that weather conditions are adjusting themselves and combining the ever increasing demands made upon the supply of the cement men, the most plausible solution of the whole situation is, sufficient business to keep all busy and prices sufficiently good to warrant the filling of large contracts. At least that is the combined opinion of the far-seeing members of the trade.

One of the largest orders booked in the city was the order sold by George W. De Smet to Contractor R. S. Blome for the new cold storage building which Morris & Company are erecting at the stockyards. This order for Vulcanite is for 16,000 barrels.

Mr. De Smet states that he has received inquiries for Berkshire White from every state in the Union, as a result of the cement show, and consequently is much pleased. In speaking of the trade, he said: "I do not like to act as prophet, but the times are good and I cannot see why spring should not bring enough business to satisfy everyone in the business."

Fred J. Morse, of the Sandusky Portland Cement Company, was very conservative when speaking of the condition of the cement trade, but he assured us that trade is on a par with that of former years and prices are holding their own. In his opinion, the condition is neither overly bright nor overly dull; in other words, just medium. Those dealers who refuse to cut prices must wait until the purchaser sees the folly in purchasing cement from any man who will cut prices. He regards the past winter at least a fair one, and is in hopes that by July things will have their old, usual swing.

Mr. Richardson, president of the Richardson Sand Company, said: "March trade is good, first-rate, in fact. The first three months of this new year have been very satisfactory and we look for a nice spring trade. Every business must do a little better each succeeding year, for if we do not show an increase we are going backwards, and I am happy to say that 1909, so far, is considerably better with us than 1908. We do not take large contracts this early, but from a number of inquiries which we have received we feel certain that we will receive our share of the large orders."

The president of the Atwood-Davis Sand Company, Mr. Brand, regards the prospects for the coming season particularly bright and promising, and, although the weather conditions have hindered the cement people and consequently the sand men to a certain extent, they are figuring on quite a number of good-sized contracts, the securing of which will guarantee a prosperous season.

As Mr. Brand expressed it, "You know, 'April showers bring May flowers,' likewise, after the showers comes a rush of orders for the sand and gravel concerns. As far as the weather is concerned, it has brought forth all that we expected of it, consequently we cannot complain on this score, and when the winter is steady it generally follows that the spring trade is good, so we are preparing ourselves ahead of time. The inquiries are coming in right along, bringing with them that happy feeling and enabling us to figure on a good many large contracts."

Mr. Curtis, of the Garden City Sand Company, is very enthusiastic over the conditions in the cement business. In speaking of existing conditions, he said in part: "The year 1908 was a banner one, but this year is running way ahead of last, consequently the natural inference would be, a banner season for the coming year. As the city records show, more building permits have been allowed for concrete and cement building in January and February than for a good many years past and the winter, usually a dull time, has held its own nicely, the indications for spring tending towards plenty of business with good prices. Our samples have been sent to all parts of the world, and the results obtained from them have gained for us a great many orders."

Mr. Curtis makes his own tests in his little laboratory and all the various colored cement coatings that go out from this office are personally inspected by him.

Miss Jones, of the Wolverine Portland Cement Company, spoke for the company in the absence of Mr. Cobean. She said: "We are receiving a good many inquiries for cement from the various retailers, but, as some smaller dealers seem to delight in cut-

ting prices, the larger retailers of Portland cement are content to sit by and watch them scramble for the orders. March has proved itself to be quite worthy of consideration, and from present indications spring will undoubtedly bring plenty of orders and good prices. Although the orders are coming slowly, they are coming surely, so what more can we ask for."

The Lake Shore Sand Company are very well satisfied with existing circumstances; in fact, so well satisfied that they are building a new crushing plant, which will have a capacity of 20,000 yards. Mr. Stebbins said: "It is a little early to make any predictions, but we live in fond hopes that the business will increase sufficiently to keep our new plant busy when completed. As things stand now, we are well satisfied but look to see a big increase soon."

J. U. C. McDaniel, of the Chicago Portland Cement Company, regards the outlook as very favorable for future business. Mr. McDaniel states that business is very good with them for this time; that January, February and March have been exceptional with a general tendency towards an increase. So far the weather has bucked them, but if April is only peaceable Mr. McDaniel thinks this coming year will hang up a record. The prices are improving right along and as Mr. McDaniel says, "Business is in the air, and there is plenty of building in Chicago, so there is no reason why it shouldn't strike us all."

W. J. Williams, of the Williams Patent Crusher Company, has much that is both interesting and encouraging to say of the condition of the cement and concrete trade. One look at Mr. Williams' books is enough to convince even a pessimist that the times are good in the cement trade for, as Mr. Williams says, never in the history of his business has such a volume been both booked and completed as the last few months has produced. Mr. Williams said in part:

"January, February and March have gratefully fulfilled our earnest expectations, and if these three months are a fair sample of what is to follow, we can expect a banner year. We are just now beginning to feel the results of the recent cement show, and we have sold quite a few crushers as the result of that advertising, and this also has been an aid in making the month of March a record-breaker. Our factory in St. Louis is busy all the time; in fact, so busy that we are building a \$50,000 addition to the factory in consequence of the large demand made upon us. The cement man must be busy to give us business, so when I tell you we are very, very busy, you can judge for yourselves the happy condition of the cement man."

The Power and Mining Machinery Company is another authority that attests favorably to the condition of the cement trade. Judging from the number of crushers, elevators and screens that this concern has sold in the last few months, the crushed stone men, as well as the cement men, have their hands full in turning out their orders. According to L. J. Hewes, the machinery business was never so good as at the present time.

This concern has equipped a number of stone crushing plants and various other concerns with a complete line of machinery, the most recent concerns being the United States Crushed Stone Company, which is building a crushing plant that will operate under an entirely different system from the average stone crushing plant and which will have a capacity of 10,000 tons. Two No. 9 elevators will be installed and four McCully crushers, two No. 6 and two No. 4. In addition to this, the Power Mining and Machinery Company will install in this plant the largest logging screen in the world, measuring 27'x18', and in addition to this, two smaller screens, measuring 4'x28'.

The concern has also closed a contract with the Chicago & North-Western Railroad to furnish the machinery for a complete seven and one-half ballast plant in Minnesota. A contract has also been secured by the concern to furnish the Brownell Improvement Company one No. 7 and one No. 6 crusher, which are to be operated in conjunction with three other No. 6 crushers and several smaller ones which they have. The Brownell company has also ordered four screens, two 5'x16' and two 5'x24'. One No. 27 elevator will be supplied and two double friction giant hoists, with all the necessary driving equipment.

The Bellevue Stone Company has also sent in an order for crushers, elevators and screens to be erected at its plant in Bellevue, Ohio. Two plants which will be equipped entirely with electric driven machinery from the Power and Machinery Company are the Illinois Stone Company, Lamont, Ill., and the Elmhurst and Chicago Stone Company, Elmhurst, Ill., this last concern having a twenty-ton, double-truck locomotive crane with a clamshell for loading the crushed stone directly from the pile.

ST. LOUIS.

St. Louis, Mo., March 18.—Announcements of new building enterprises are steadily becoming more frequent, and comprise a variety of structures. In many instances the architects have completed the plans, the contracts have been let, and the work of excavating for foundations already begun. Orders are being placed for stone and brick, cement, structural iron and other material. With easy money, reduced cost for material and an ample supply of skilled mechanics, building operations in the near future promise to be large in St. Louis and the adjoining territory.

St. Peter's Church will erect a new edifice at 2907 Wayne Avenue, to cost upwards of \$75,000. The building, which is English Gothic style, will be 75'x87', and its height will be 85'. The walls will be constructed mostly of brick, with facing of stone.

Work is being pushed vigorously on all the proposed boulevards, including the Kings Highway, which is the most important of the newer ones.

University City, a suburb of St. Louis, has some ambitious plans for beautifying the town, the principal one of which is the construction of twenty-four miles of boulevards, a public school and a city hall. Among the first things that will be done is making Delmar Avenue, from the city limits to Hanley Road, a fine boulevard 80' wide. A large \$40,000 archway at one end of Delmar Avenue, in University City, is now in course of construction, and it is reported that the Daughters of the Confederacy will erect a \$35,000 monument at Delmar Avenue and Hanley Road.

The Johansen Brothers Shoe Company has taken out a permit for the construction of a factory building on the south side of Laclede Avenue, just west of Grand Avenue. The building will be five stories in height and of modern slow-burning mill construction. The exterior wall surface will be 70 per cent glass, insuring plenty of light and good ventilation. The building will be 55'x188' and of brick.

The Peters Shoe Company will build a five-story fireproof brick and stone factory at North Market Street and Glasgow Avenue, to cost \$125,000.

The Campbell Iron Company has closed a contract for the erection of a three-story and basement warehouse, to be erected on Cass Avenue, east of Ninth Street. The contract also includes the erection of a two-story office building. Both the warehouse and office building are to be built by the Chapline Realty & Construction Company, and the work will be done under the direction of J. M. Dunham, architect. The cost will exceed \$60,000. Many ideas new to this city will be embodied in both of these buildings. The walls and construction throughout will be of a heavier character than has been used in this city before. For a further prevention of fire, the building will be divided into three separate compartments, which, by the closing of steel fire doors, can be made entirely independent of each other.

The M. M. Buck Manufacturing Company and the Handlan-Buck Manufacturing Company have plans under way for the erection of a new plant, to cost in the neighborhood of \$300,000, and is to be six stories in height. It will contain 200,000 square feet of floor space.

Mrs. Mary Ryan, of Chicago, will build at the corner of Laclede Avenue and Sarah Street a large apartment house. The lot has an area of 72'x146'. Mrs. Ryan also intends to build on the opposite corner a store and flat building. The lot is 98'x142'. The plans are being prepared for both buildings. Including the land, the two new buildings will represent an investment of \$500,000.

The Augusta Knight estate will erect a seven-story structure at 1122-26 Washington Avenue. It is to occupy a lot 75'x150', and will cost about \$100,000.

The Holbrook-Blackwelder Real Estate Trust Company will erect a building on the corner of Locust and Eighteenth Streets. The structure is to be seven stories with basement, and will have a ground area of 155'x75'. The cost of the building will be about \$300,000.

The Savoy Apartments, consisting of two separate buildings, which are to be erected on the corner of Delmar and Union Avenues, will be one of the finest structures of the kind in the country. The buildings will be eight stories and basement, and represent, with the erection of six apartment houses of three stories to adjoin the larger structure, an investment of over \$600,000. H. F. Roach is the architect, and the Holbrook-Blackwelder Real Estate Trust Company represent the property.

A subway line to cost about \$40,000,000 is being planned for St. Louis. It will extend from downtown to Taylor Avenue, on the west.

Edward Quebbeman, St. Louis representative of the Universal Portland Cement Company, states that

the outlook for the coming season is very bright.

Mr. Homer, of the Union Sand & Material Company, reported the demand for lime, sand and gravel gaining week by week.

It seems that the bottom of the Mississippi River promises to become a rival of Hot Springs, Ark., in the matter of the production of diamonds, as stones are being pumped up by the Union Sand and Material Company. They range in size from that of a large pea to half the size of an egg. In breaking them open, they were found to sparkle almost with the lustre of genuine diamonds, and some have been cut and are being worn.

M. R. MacKinnon, who succeeds Capt. F. S. Clark as sales manager of the Continental Portland Cement Company, stated they had secured a fairly liberal number of contracts. The company anticipated improvement in the demand in the near future, and a corresponding betterment in price.

The Acme Cement Plaster Company has recently removed to new quarters in the Bank of Commerce Building, where they have a suite of seventeen rooms on the tenth floor, which is being very handsomely furnished, and are equipped with every convenience.

The Contracting & Supply Company has bought a tract of land, embracing five acres, having a frontage of 505' on Park Avenue, and a depth of 450' to the switching yards of the Frisco railroad. This company is composed of seventy local contractors and dealers in building material. John Schmoll is president and Henry W. Kiel, secretary.

The Jonca Granite Company has been organized and established offices in the Pierce Building. B. J. Fine is president, J. Henry Cordes, vice-president and treasurer, and C. W. McAuliff, secretary. The capital stock is \$200,000. The company will open up quarries near Ste. Genevieve, Mo., and machinery is to be installed as fast as practicable, confining itself for the present to crushed granite for all purposes, and later on, when in position to do so, will get out dimension granite.

NASHVILLE AND THE SOUTHEAST.

NASHVILLE, TENN., March 18.—Trade in building materials in Nashville promises to be very good this spring. Many nice contracts have already been handed out. The million dollar Hermitage Hotel and other large undertakings for 1909 add to the list of big jobs.

Architect A. E. Manierre, Vanderbilt Building, has designed a number of handsome concrete stone houses within the last few weeks. Mr. Manierre, it will be remembered by ROCK PRODUCTS readers, was formerly with the Newsome Crushed Stone and Quarry Company. He says that the outlook for Nashville building is good. He has built recently a fine concrete block residence for H. F. Alexander, at Columbia, Tenn. He has also planned a garage, stable and servants' house in same material for Nashville parties the last few weeks. Automobile owners are very partial to the concrete block idea as a rule. He has also built four concrete one-story buildings for E. H. Pigue on Commerce Street.

The Newsome Crushed Stone and Quarry Company, Vanderbilt Building, are running their quarry at Newsome and are doing a large amount of residence work in and around Nashville.

The Southern Construction Company, of Harriman, Reane County, Tenn., has been incorporated with a capital stock of \$50,000 by the following parties: W. H. Grannis, T. A. Christmas, W. H. Spencer, John B. Vigle and Robert M. Jones. The company will quarry and crush stone, manufacture cement blocks and construct cement buildings.

The Huntsville Concrete Company, of Huntsville, Ala., has been incorporated with a capital stock of \$100,000. John M. Hampton is president, E. H. Trebes general manager, and Robert B. Wade secretary and treasurer.

Henry H. Brown, of Greenville, Tenn., has been at Johnson City the past few weeks preparing to erect a cement block factory. About \$5,000 will be invested and it is understood that operations will be commenced at once.

The city of Memphis has awarded contract to the Mineral Rubber Paving Company, L. T. Kavanaugh, president, for the asphalt paving around Forrest Park and on Manassas Street. The cost will be about \$10,000.

J. J. Green and W. L. Funk will erect a cement brick factory at Yeakum, Texas. It will have a capacity of 3,000 bricks per day.

The Reckmart-Davitt Portland Cement Company, previously reported incorporated, will build a cement plant with a daily capacity of 500 barrels of Portland cement a day. The company owns ninety acres of land, which it will develop.

TOLEDO AND VICINITY.

TOLEDO, O., March 20.—Present indications point to a very fair amount of construction work in northwestern Ohio during the coming season. Contractors and supply men are hopeful that the outlook will continue bright, for 1908 goes on record as having been the poorest in the last score of years on all kinds of construction work. It cannot be said that an altogether bright future is assured, for business is controlled largely by demand. An off year has left 2,500 vacant residences in the city; nearly every flat has one or more vacant suites, several office buildings are only partially filled, numerous store rooms have the "for rent" sign attached, and there seems to be little call for new factories. However, architects and contractors have a much larger volume of business on hand than at any time during 1908, and the really active season is not yet at hand. There is a great deal of inquiry from prospective builders who are wanting to know what they can do with so much money and who are willing to build if suitable tenants can be secured. Indeed the immediate prospect for building is good.

Concrete will have a considerable call this season in the construction of the larger buildings. A six-story mercantile building, to be erected by M. O. Baker for the C. M. Feilbach Company, wholesale grocers, will be of this material. The general contract for this structure has already been awarded to William J. Spear, who is to have the building ready for occupancy by midsummer. Another building of some importance will be that erected at the corner of Adams and Summit Streets for the J. L. Hudson Company. This will be six stories high, built of reinforced concrete and faced either with impervious brick or terra cotta, definite decision as to this not yet having been made.

Work on the new postoffice building will shortly be started, the general contract having just been signed with the Charles McCaul Company, of Philadelphia, Pa., the contract price being \$468,562 and the contract calling for the completion of the building by August 1, 1910. Definite decision has not yet been made as to whether limestone, sandstone or granite will be used, the various materials having strong advocates among the residents of the city.

The Board of Education will build two new high schools, plans of which are now being prepared by Architect D. L. Stine.

The Zehner Packing Company has just announced its intention of spending \$100,000 in new buildings, a portion of which will be of concrete and the remainder of mill construction, local brick having the call for all the buildings under contemplation.

The Methodist churches of the Toledo district have just completed a successful canvas for funds with which to erect a new hospital in this city. Several other buildings have been started, among which are the Toledo Art Museum, which will be of granite or marble, and a passenger and freight station of the Ohio Electric Railroad and a new Roman Catholic church on LaGrange Street.

A new postoffice building is being discussed for Defiance and an appropriation has been passed for buying a site, but building operations will probably not be begun for at least a year. New school buildings are to be erected at Lyons, Fostoria and Fremont, and a new church is shortly to be erected at Defiance.

A few concrete bridges will receive attention, bids for one in Toledo having only recently been opened. The amount of paving in Toledo will probably show a slight decrease over last year, and what paving is laid will probably, for the most part, be laid on concrete foundation, as this character of paving has proven to be the best, according to the opinion of the city officials.

The appointment of a receiver for the Logan Brick Company, while not coming as a surprise to those in touch with the affairs of the company, nevertheless came with regret, for even the creditors of the concern were hoping that better things were in store for the company and that eventually it would be able to weather the troubles which have seemingly been trying to overthrow it for some time past. Peter Degnan, president of the Toledo Builders' Supply Company, has been appointed receiver.

The amount of stone road building has not yet been announced by the county commissioners, but this item is always one of much importance. With broken stone within easy reach, it is more and more being used for road building, and the coming season will probably see the spending of many thousand dollars for additional stone roads. The outlook for a strong call for crushed stone is likewise good, as several plants are intending to increase their capacity.

Local brick makers are somewhat at a loss to know what to expect. Up until a year or so ago all local brick was supplied through the Toledo Brick Company, which acted as a selling agent for the manufacturers, but with a prosecuting attorney elected on

an anti-trust platform, the organization was disbanded and since then every manufacturer has been a law unto himself. The result has been that the price of brick has been from \$2 to \$2.50 off per thousand, and even greater cuts have been recorded. Rumors of another attempt to get together are current and it is expected that some means will be devised whereby the output can be controlled without continuous price cutting.

R. E. Kelly, manager for the Warren B. Ferris Brick Company, of Columbus, was in the city a few days ago investigating affairs and looking into methods of the old Toledo Brick Company.

Manufacturers of pressed brick and the finer grades of brick are indifferent as to new price schedules, the prevailing schedule of prices being the same as a year ago, although a few of the companies have added a dollar or two a thousand to yard prices. Local manufacturers have been flirting somewhat with stiff mud process. Thus far the entire local output has been entirely dry press, with the color only fair and the bura not as hard as many buyers would like for general purposes.

Lime manufacturers report an increase in the demand, which may be just a little more active than normal for this time of the year, because of an advance of \$1 a ton about the first of January. Light stocks are now being filled up and the demand is probably larger now than it will be later on.

There is little to be said of sand thus far. A light building activity during the winter months did not tax local supply men very hard, hence there is a larger supply on hand just now than usual and there is no necessity for the sand suckers to get busy before the weather is fair. Other supplies are about the same, the most important change thus far is the general advance in cement, which has gone up 20 cents a barrel, with prospect of another rise.

Two new concerns which will deal in rock products have just been organized. The Marblehead Lime and Transportation Company, of Sandusky, has just been organized with a capital of \$300,000. Incorporators are: H. H. Stambaugh, J. G. Butler, Jr., R. C. Steese, John Stambaugh and C. M. Cook. It is understood that the concern will shortly take over valuable quarry lands at Marblehead and that a large blast furnace is contemplated for that vicinity. The other concern will be known as the Michigan Rock Products Company. C. M. Edson, cashier of the Dollar Savings Bank, Toledo; A. Q. Thatcher and Gus Smith, of the Smith-Thatcher Quarry Company, Maybee, Mich., are interested parties. The new company has already purchased the Ida quarries at Ida, Mich., which consist of about 200 acres of quarry lands, and arrangements are already being made to install a large crushing plant, together with lime kilns and additional machinery of different lines. Products to be produced are lime and lime specialties, ground limestone for fertilizing purposes, flux stone, dolomite, crushed granite boulders, crushed limestone, etc. Mr. Smith is to be active manager.

The Woodville White Lime Company has just finished three new kilns, aside from other improvements. One of the kilns is to be used exclusively for wood burned lime. This product was burned in southern Ohio for this company last season, but the company whose output the Woodville company controlled, dissolved and the business has been moved to the local plant. This company reports a splendid business thus far this season with the outlook good.

Closely allied with the above concern are the Universal Machine Company and the Urschel-Bates Valve Bag Company, not only because the stockholders in all three companies are practically the same, but the latter two companies are important adjuncts to the rock product industry.

The Ohio and Western Lime Company will increase its plant at Fostoria for crushing stone. At present a No. 3 machine is in use, but a No. 5 or 6 will be added to meet the local demand for this product, and it is quite likely that the price will be increased, as it is now below the point of profit. The company has not yet announced any improvements for its lime plant, although some are contemplated.

The volume of business in the line of cement sidewalks promises to show a handsome increase over last year. The city has already appropriated considerable more money than usual for this purpose. The sidewalk department of the city has established something of a reputation for good work in this line, and many householders are now willing to have their sidewalks laid by the city, and in turn pay for them when paying taxes. Contractors have already announced a price of 9 cents a foot, with a five-year guaranty attached. The prevailing price hitherto has been from 11 cents to 13 cents a foot.

Albert Neukom, owner of a large steam stone yard in this city, has just incorporated and will hereafter be known as the Albert Neukom Stone Company.

Manufacturers of cement blocks have not yet started up for the season, as all have sufficient stock on hand to take care of the early calls for blocks.

Indications, however, promise a good demand, as this material is becoming more and more popular with the builders of the cheaper grade of residences.

The Multiplex Concrete Machinery Company has recently moved to Elmore, O., where it is having its machines manufactured under contract.

The Sanford Concrete Machinery Company, offices in the Nicholas Building, of this city, is working on a power concrete machine which will be ready for the market late this fall. The machine is intended to meet the demand, for such a machine which is wanted by small power users who have sufficient extra power to run a small machine.

THE NORTHWEST

MINNEAPOLIS, MINN., March 13.—The building season has been a little slow, but there are enough good-sized projects being taken up now to indicate that the season will be better than last year. Should the tendency to take up the larger structures continue, the season will show a larger monetary total than last year, for there seems to be little reason for the residence building era to subside.

All classes of material in building lines, with the exception of iron and steel, seem likely to look up a little. Cement will, in all probability, hold to a level market, not far from \$1.50 in the Twin Cities. Brick, which has been exceedingly dull, is more promising, and a little run of demand would serve to strengthen prices. Lumber has a tendency to strengthen under the slightest encouragement, and other materials are not inclined to go lower.

The labor prospect is now as usual at this time, something of an unknown problem. Sometimes the demands are known at this time, but oftener they are not. It seems to be something of a waiting game, to ascertain the prospects, and determine whether building will be strong enough to justify a demand for more money or not. It will not be surprising if such a demand is made.

NEWS AND NOTES.

Jogerst & Erickson, architects, St. Paul, succeed Wm. Elliot & Erickson, Mr. Jogerst moving from Wausau, Wis. They have offices in the Essex Building.

The Minneapolis Master Builders' Association elected officers for the year as follows: Jas. Leek, president; J. L. Robinson, vice-president; John Wunder, treasurer; Eugene Young, secretary.

The building materials supply business of Johnson & Jackson, in Minneapolis, the Builders' Supply Company of Minneapolis and St. Paul, and J. W. L. Corning and C. R. Corning, of St. Paul, have been merged, and the new firm name will be Johnson, Jackson & Corning, Inc., which took hold March 1. The old offices are retained.

Building permits for February in St. Paul showed a heavy gain, \$375,022 against only \$168,732 for the month one year ago. Minneapolis had a slight loss, \$300,745 against \$356,320 for last year.

H. K. Zuppinger, of Minneapolis, will represent the Municipal Engineering & Contracting Company, of Chicago, in this territory.

BUILDING ITEMS.

Purcell & Feick, Minneapolis architects, recently prepared plans for a church and guild hall for Christ Episcopal Society of Eau Claire, Wis. It will be of cut stone and pressed brick construction, costing about \$75,000.

The Corser Investment Company, agents, has had plans prepared by F. G. Corser, architect, for a two-story brick block to be erected at Sixth street and Third avenue South, in Minneapolis, to cost \$20,000.

The H. N. Leighton Company, of Minneapolis, received the general contract to erect a publication office for the Commercial Bulletin Company, at University and Raymond Avenues, in the Midway district. Cost \$20,000.

P. J. Linhoff, architect, St. Paul, recently completed plans for a handsome two-story bank building for the Farmers' National Bank, of Alexandria, Minn. The general contract went to J. B. Nelson & Co., of Mankato, Minn. It will be 75x100 feet, with cut stone or granite work for the bank front.

Michaud Brothers, wholesale grocers, St. Paul, have had plans prepared for a seven-story wholesale warehouse to be erected at Fourth and Wacouta Streets. It will be of reinforced concrete construction, 100x142 feet. Cost complete, \$130,000. Bids will be taken for two stories only, at this time.

Herman Kretz & Co., architects, St. Paul, have prepared plans for rebuilding the building at Seventh and Cedar Streets, where the White House department store was burned out late in January. It will be four stories, 100x118', reinforced concrete construction. Cost \$90,000.

Joseph Gruber, of St. Paul, will erect a pressed brick and cut-stone building on an irregular plot of ground at West Fifth, Third and Fourth streets, to

F. E. Graves, of Minneapolis, received the general contract for the addition to the Margaret Fuller school building, at his bid of \$17,621.

Mrs. O. C. Macklett, of St. Paul, has had plans prepared by A. F. Gauger, architect, for a handsome flat building, four stories, 50x60', to be erected on Ninth, near St. Peter Street. Cost \$20,000.

The State Board of Control has authorized Clarence H. Johnston, architect, St. Paul, to proceed with the preparation of plans for new state prison buildings at Stillwater, Minn., to cost over \$2,200,000.

St. Thomas Catholic Academy, St. Paul, is raising funds for the erection of new buildings and improvements, to cost complete about \$300,000.

William H. Eustis, owner of the Flour Exchange, Minneapolis, corner of Fourth Avenue South and Third Street, has had plans prepared by Kees & Colburn, architects, for seven additional stories to be built to the building, which is now four stories high, 66x155'. It will be of fireproof construction, porous terra cotta fireproofing, enclosed conduit work for wiring, etc. Cost about \$240,000.

Kinney & Halden, architects, Minneapolis, have plans for a modern pressed brick flat building, with cut-stone trimmings, to be erected by George B. Narrangang, of Aberdeen, S. D. Cost \$38,000.

An appropriation has been asked of the Minnesota legislature to provide for the erection of a steel and concrete grandstand at the state fair grounds, to cost about \$350,000.

J. E. Pilgrim, of Minneapolis, received the contract for the addition to the Schiller school building at \$23,323.

Stone & Jackson, architects, Security Bank Building, Minneapolis, have prepared plans for a gymnasium building for Carleton College, Northfield, Minn. It will be 63x170', of gray brick, with Kettle River sandstone trimmings, the first floor to be of reinforced concrete construction. Cost \$35,000.

Kinney & Halden, Minneapolis, architects, were successful in the competition for plans for the new school building at Wadena, Minn., to cost \$50,000. It will be 110x137', pressed brick and cut-stone construction.

The J. & W. A. Elliott Company, Minneapolis, received the general contract for the erection of the new wholesale plumbing warehouse for Reid Bros. & Co., on Sixth Avenue South, near Third Street. Cost \$20,000.

The Elks Lodge, of Minneapolis, is considering the erection of a new building to cost \$200,000.

C. F. Haglin, of Minneapolis, received the contract for a twelve-story addition to the Minneapolis Chamber of Commerce Building, to cost \$100,000. It will be of pressed brick and reinforced concrete construction.

MEMPHIS AND THE SOUTHWEST.

MEMPHIS, TENN., March 19.—The spring outlook in building is very good and dealers in building supplies, while complaining in some instances of a slashing of prices and unprofitable market conditions, nevertheless indicate that a volume of business is being done that is quite up to the average for the month of March. Building permits for the last month in Memphis were above those of February one year ago.

The very high water prevailing in the Mississippi River has interfered to some extent with pumping arrangements of the local sand company, but after making repairs interruptions have not been serious enough to delay the firms more than a few days at a time. The cement trade is the subject of very slight fluctuations of prices, brought about mainly by competition rather than by outside conditions.

Steve Wright, of the Wright Lime and Cement Company, said today: "The building situation is about as good as usual for this season, but business is rather unprofitable because of the fact that there is a great deal of competition, and price cutting has been unusually pronounced this season. In the fight for trade supremacy there have certainly been cases where all profits were sacrificed. I do not think the prices of Memphis have ever been so low as today. I hope though that these conditions will be rectified soon."

The Kavanaugh Sand Company, Tennessee Trust Building, were visited today and they said: "We are enjoying a very good trade in sand. The high water in the Mississippi River is bothering us to just a small extent in our pumping arrangements, but we are having a good market for sand and prices are well maintained—as a matter of fact, there have been no consequential price changes on sand in this market for the last thirty-six months. But a very little of our sand is taken from pits. We might say almost 99 per cent is river sand. Among the buildings for which he have furnished material in this city within the last few weeks are the Shelby County Courthouse, Y. M. C. A. building, several residences

and storehouses, and we are now furnishing the sand for a large building being erected by the American Amusement Company, on Madison Avenue."

The Union Sand Material Company, Tennessee Trust Building, have opened up several new warehouses in connection with their cement business, to more conveniently cater to the trade in the residential district and to deliver cement in small quantities. Quoting from a representative of this firm: "Our yard business is getting along nicely this spring. We have four yards in Memphis. We will shortly begin to handle 'Red Rings' brand of cement. Prices on standard cement seems to be about the same."

The Selden-Breck Construction Company, of Memphis and St. Louis, a contracting firm operating in reinforced concrete and other classes of building material, have just been awarded the contract for the Scottish Rite Temple in this city.

J. C. Lovelace, sales manager of John A. Denie & Sons Company, has been detained from his office this week by illness. His firm reports their line of trade as being very good. Just at this time they are not operating their own kilns, but are handling large quantities of lime, the oldest line firm in the city.

The Cubbins Lime and Cement Company, in North Memphis, report a satisfactory spring trade and are handling quantities of cement and other supplies out of their various warehouses dotted over the city.

The Memphis Machine Works, on Vance Avenue, recently destroyed by fire, will be rebuilt immediately. The contract has been let to James Hutchinson, a local contractor. Besides repairing the portion of the plant which was only partially destroyed, a two-story concrete addition will be erected. Entire cost will be \$10,000.

One of the biggest street improvements of Memphis in several years is now well under way, and when completed will transform the east end of Madison Avenue into a wide thoroughfare. Depressions are being filled, high places cut down, culverts being constructed and in many places the street is being widened to conform with the rest of the thoroughfare. The street will be covered with a fine coating of asphalt.

"Stone Wall Place" is the name of a new subdivision which will be laid off on the R. T. Cooper tract, located at Poplar Avenue and Willowdine Street, upon which work will begin at an early date. The company is capitalized at \$80,000. The incorporators are: T. O. Vinton, R. Brinkley Snowden, R. T. Cooper, J. B. Snowden and S. R. Martin. Mr. Martin will have direct supervision over the work. The tract upon which the subdivision will be located covers twenty-two acres and fronts 500 feet on Poplar Avenue. Considerable concrete paving will be laid.

At Nashville the contract for grading and macadamizing Sixteenth Avenue South was recently awarded by the board of public works to J. A. Webb, of Nashville, whose bid was found to be the lowest. The work represents one of the longest stretches of pavement recently constructed in Nashville, the length being about 2,600 feet, and Mr. Webb's price for the same was \$3,386.

At Dallas, Texas, active street work has been resumed. The Texas Bitulithic Company has completed the concrete foundation for a lot of new paving on Ross Avenue. Commissioner Doran has submitted to the board of public works a report recommending that the contract for paving Jackson Street be awarded to Ockander Brothers. This calls for brick surface, with asphalt filler and a five-web gravel concrete foundation.

LOUISVILLE.

LOUISVILLE, KY., March 20.—Business has been opening up steadily during March, and now that spring appears to be in sight and likely to bob up at any moment, builders and supply men seem to be of the opinion that things will be humming before long. As a matter of fact, there is considerable more activity in nearly all lines just now than there was a month ago; and this is due both to the weather and to generally bettered conditions of business.

There seems to be plenty of building in sight for Louisville this year. Contracts are actually being let, the latest being for the Children's Free Hospital, additions of which are to cost \$55,000, and have been heretofore described in ROCK PRODUCTS, and those of the Audubon Club, a new country club formed here recently. They are not very costly, but will make a handsome appearance. Then there are lots of residences going up, and one big building association has planned a hundred or two cottages for the West End, which hasn't had much building development recently.

There is a lot of talk about new skyscrapers in Louisville, and some of them will probably materialize. The twenty-four-story building rumored for

"Fourth and Market is likely to come sooner or later, while one of the same type, including a theater and music hall, is being talked of for Fourth Avenue farther south. The recent destruction by fire here of the coliseum, a skating rink and amusement hall, which had been used for conventions and musical affairs, has started talk of a big auditorium, and this may have developments.

General Manager Gray, of the J. B. Speed Company, said that though business has not resumed as actively as had been expected, the situation is satisfactory. Some sewer contracts are being taken care of, and while there are no large contracts in sight, there is enough doing to keep the plant going. The mills have reopened after a temporary shut-down for repairs, and with the installation of some new machinery have a daily capacity now of 2,000 barrels a day. Mr. Gray said that he thought the development of business was probably being held back by the tariff discussion, railroads, building and other industries affected by the tariff hesitating to proceed along construction lines until that question is out of the way. Cement, of course, is not directly affected by the tariff discussion.

Lots of sand is being gotten out by the Ohio River Sand Company, which started its 1909 season a little late, however, on account of wet weather. The new boat, the "Duffy," is now on the job, having replaced the "William Duffy," which was dismantled. The "Duffy" is equipped with modern machinery, and has a larger capacity than its predecessor. Prospects for the building season are favorable, it was stated, and it is believed that the output of the company will be heavy.

A great deal of sidewalk and street construction is being planned by the city. Announcement has been made of a letting of contracts for asphalt street construction March 22, which will amount to \$150,000 or \$200,000. It is expected that the size of the work will attract many outside contractors. Contracts have recently been let for much sidewalk construction, brick and granitoid being provided for. Staebler & McFarland and L. R. Figg got work which aggregated \$20,000 or more.

The sewerage commission is going ahead planning work and letting contracts. Coupe & Gray were given the job of constructing the St. Xavier Street sewer and the Clay Street sewer. Bids have been received and taken under consideration for the construction of the Wilson Avenue sewer, to connect with the Southern Outfall, and the Castlewood sewer, in the East End.

The Southern Outfall sewer, the biggest piece of work being done by the sewerage commission, seems to be ill-fated, judging from the number of men who have been killed and injured there. The fifth to be killed lost his life March 14, while watching the work. The mast of a huge derrick fell and crushed him, driving his body into the soil. He was not identified, and was believed to be a tramp.

The Engineers' and Architects' Club at their March meeting discussed the general topic of earthquakes. A feature was the reading of a paper on that subject by W. J. O'Sullivan.

The builders' exchange is coöperating with the building inspector and the Louisville Chapter, American Institute of Architects, in the drafting of a new building ordinance. One has just been passed, but it is not believed that the new measure will be affected by that fact. The builders' committee is composed of Webster Gazlay, chairman; Daniel Rommel, Bernard Selligman, Dudley Gregory and J. B. Ohlischlager.

D. X. Murphy, the well known Louisville architect, is planning the plant of the \$500,000 Juarez race-track, which is to be built in Mexico with American capital, and of which Matt Winn, the local turfman, is to be manager. Concrete will be used to a large extent in building the grandstand and the other principal buildings. Racing will not begin until next year.

A brick and tile plant is to be started near Whitesville, Ky., and a meeting of citizens was recently held for the purpose of organizing a company.

A consolidation of brick companies is to be made at Lexington, whereby the Lexington and Fayette Brick Companies will become the Lexington Brick Company and the Monticello Brick Company will be absorbed and its machinery used by the Lexington plant. The consideration involved is about \$25,000.

Dr. S. E. James, of Frankfort, is working on a concrete boat which he will use on the Kentucky River next summer. It will be the first of the kind seen on that river, and Frankfort people are acclaiming Dr. James as a mechanical genius on account of his apparently successful plan for making the boat.

There was a slight falling off in Louisville building in February, the returns showing an issue of 151 permits, representing an expenditure of \$100,401, while in the same month of 1908 160 permits were issued, for buildings to cost \$126,818. The general building prospects, however, are excellent.

(Continued on page 63.)

QUARRIES

OHIO ROAD BUILDERS.

Great Meeting at Columbus in Which Every Minute Bristled With Progress

COLUMBUS, O., March 3.—The Ohio State Stone Club has held a two-days' session, being the occasion of its third annual convention. The club is composed of the principal crushed rock producers and road contractors of the state, and is one of the most active, intelligent and progressive organizations of business men in the country. They are strong boosters of the good roads movement in Ohio, and at all times stand ready with experience to participate in educational work for the advancement of the improvement of roads. It is a representative organization, counting amongst its members the heaviest investors and developers of quarry products in the state.

The result of the regular meetings of the club in the past has had the effect of securing by comparative discussions better results to the road contractors themselves, as well as better roads for the money for the people at large. They have recommended to the Legislature, directly and through the highway department, the adoption of standard specifications for materials to be used in road building, so as to obtain uniformity of specification both with regard to state work and that coming under the jurisdiction of the county commissioners. They believe that the adoption of such standardization of road materials and uniform specifications by the highway commissioner will have a strong advisory effect at least upon county commissioners, even though such road work might be outside of the jurisdiction of the state officer.

The cost of railroad transportation and the price of haulage from rural points of delivery were discussed at length. The need for some provision to secure temporary switches or sidings for the delivery of stone at the nearest point to the construction work of roads to save the distance of hauling were important factors of economy that were suggested and discussed. The cost of freight is often double the value of the stone, and frequently the bill for hauling stone from the point of railroad delivery to the construction work doubles the cost again. These items are the biggest handicap to more economical construction of roads and are recommended to the consideration of all parties interested in the good roads movement.

Quarry and plant equipments have been developed by the stone club to a greater efficiency and a more economical basis. The application of concrete in the construction of culverts, bridges, retaining walls and surfaces for the much worn parts of roads have been suggested and adopted. New materials, such as asphaltum and tar products for top dressing, have been given due consideration, and the general uplift of the road contracting and rock crushing business has been given an impetus, which means that with greater intelligence, better plants and better informed contractors, that the money spent for roads is more sure of getting good results than in other states where such a meritorious organization has never existed.

The Legislation Committee of the club is really the official promotion branch of the organization, at all times ready to confer with and assist the good roads movement in whatsoever capacity it may be available and to assist in an advisory way with public authorities to get the most practical, intelligent, economical and resourceful plan for building the roads of the state, which are naturally parent to those constructed by the various counties and others.

THE ATTENDANCE.

J. W. Weldon, Jr., Toledo Stone and Glass Sand Company, Toledo.
J. S. Burton, Burton Powder Company, Pittsburg, Pa.
C. F. Gibson, Troy Wagon Works Company, Troy.
A. Ruhn, American Metal Hose Company, New York City.
J. J. Brannan, Williams Contractors' Supply Company, Marysville.
P. E. Lee, Bascom Stone Company, Fostoria.
Chas. H. Jackson, Jackson Stone Company, Covington.
W. H. Loy and J. F. Pogue, The Hancock Stone Company, Findlay.
George E. Mercer, Bowling Green.
D. F. C. L. and W. C. Reinheimer, New Paris.
Myron Strayer, A. L. Strayer, Grand Rapids.
Fred K. Irvine, Rock Products, Chicago.
Allen Patterson and Victor Hammond, The Bluffton Stone Company, Lima.
S. A. Swint, Tremont.

E. T. Paul and Robert Mollett, Buckeye Stone Company, Bluffton.
R. C. Roach, Waterville Stone Company, Waterville.
Wm. A. Bibler, Arlington.
Harry Tarbox and J. A. McCall, Tarbox & McCall, Findlay.
C. W. Ryan, Ryan Stone Company, Maumee.
W. H. Detamore, Lewisburg Stone Company, Lewisburg.
Z. Bremer, New Pittsburgh Coal Company, Columbus.
F. Clingay, Mahoning Supply Company, Youngstown.
C. L. Ireland, The France Company and Erie Stone Company, Van Wert.
M. Whiteside, The Aetna Powder Company, Columbus.
W. J. Keever, The Scioto Stone Company, Columbus.
W. J. McMannis and P. N. Denison, of the E. I. du Pont de Memours Powder Company.
John K. Broderick, Broderick & Bascom Rope Company, St. Louis.
W. Harwood, Big Springs Stone Company, Big Springs.
H. C. Innes, C. E., Indian Refining Company, Inc., Cincinnati.
Henry C. Fraas, Myron S. Siebert & Co., The T. L. Smith Company, Columbus.
J. M. Thistlethwaite, The T. L. Smith Company, Milwaukee.
W. T. Fassig, New York Coal Company, Columbus.
A. Acton Hall, Ohio Marble Company, Piqua.
S. M. Hall, Brokensword Stone Company, Bucyrus.
Johnstone and O. P. Bird, Ohio and Western Lime Company, Huntington, Ind.
F. H. Angell, Jeffrey Manufacturing Company, Columbus, Ohio.

OPENING SESSION, MARCH 2.

President Allen Patterson called the convention to order in his usual businesslike way, with Secretary-Treasurer S. M. Hall recording. There was quite a roomful of the members, together with the representatives of machinery and supply concerns.

PRESIDENT'S ADDRESS.

Gentlemen of the Ohio State Stone Club: In gathering here today to further the interests of the stone industry of our state it may be well to note some of the points, not apparent at first thought, that give our meeting an importance second to none.

History undeniably teaches us that the strength, wealth and importance of a nation, both in ancient and modern times, are in exact ratio to that nation's capacity for producing those things which are needful to human life and comfort.

But the mere production of the necessities and luxuries of existence does not alone suffice to make a great nation. Another factor, that of distribution, is of great moment.

It is a fact that the roving tribes of herdsmen recorded in early history, to the great world powers of today, the secret of the strength and importance of a nation has consisted chiefly of two correlative factors—production and commerce.

In meeting here, perhaps the chief motive of each man present is to promote the welfare of the particular firm or quarry in which he may be interested. Aside from this, our meetings have another and a deeper bearing.

The farmer, whose whole output must be taken over the country roads to market; the railroad company, who handles the products of shop and farm; the merchant, who sells to and buys of the farmer; the manufacturer, whose goods must be taken to every corner of the earth—to all these, the stone industry has a vital significance. It is a subject that bears directly on that great factor of modern civilization—commerce.

To what extent the development of our nation's wealth and progress may be promoted by the macadam road, by the safe, sure, clean, permanent stone ballast of the up-to-date railroad and trolley line, and by the ever-increasing uses of concrete, is a matter for conjecture.



ALLEN PATTERSON, PRESIDENT, LIMA, OHIO.

But let no man think that the stone industry is a matter of secondary importance. It is rapidly moving forward in the rank of our great commercial enterprises, and the time is not far distant when it will take its place along with iron, coal and our other great mineral developments.

Believing that each member of our organization will always keep in mind the welfare of the whole country as well as his private individual interests, I take pleasure in welcoming you to this meeting, which will take its place along with iron, coal and our other great mineral developments.

Joseph Weimer, representing the mayor of Columbus, in a few pleasant remarks expressed the gratification and hospitality of the city to all of the visitors. After looking at the substantial character of the men forming the convention he remarked that he was willing to promise that no man present should go to jail during their stay in Columbus.

President Patterson gracefully replied as follows: "On behalf of the members of the Ohio State Stone Club I desire to express our sincere appreciation for the hearty welcome we have received from the chief executive of the city of Columbus. We accept the hospitality so kindly extended and will endeavor to merit the cordiality."

The roll call showed about forty of the members present, and the minutes of the last meeting, together with reports of committee work since the last annual convention, were duly read and approved.

The report of the secretary and treasurer came next, showing that the club had gained a number of members and that finances were in good condition, due probably to the activity of the jolly secretary, who had the following poetical dun for dues pretty widely distributed before the time of the convention:

And when a man is owing us,
'Twould fill us with regret
To take our pen and ask him when
He'll pay that little debt.

If you will kindly take this hint,
From us you'll hear no hollers.
Just show us that your heart's not flint,
By plunking down \$5.00.

C. L. Ireland and E. T. Paul were appointed an auditing committee to check over the accounts of the treasurer, which were later reported in perfect condition.

Telegrams and letters of regret for circumstances preventing attendance at the convention were read from E. L. Byrum, F. K. Hogue, Lawson Moores and J. H. Crawford.

J. C. Wanders, state highway commissioner, was introduced, and talked to the road contractors upon the subject of good roads from the standpoint of the state departmental work of which he is in charge. He said in part:

Public interest in good roads is growing very rapidly. Road building generally in this state was to a great extent abandoned with the advent of the railroad. The civilizing influence of the railroad has been felt, and now it is growing more apparent that the market roads of the state are the most important factor for its future development. Not only is this true of Ohio, but every state is interested in the great movement for good roads. New Jersey was the first, sixteen years ago, with an appropriation to build better roads. Ohio started in 1904 by providing \$10,000 a year for road improvement. Last year the legislature provided \$5,000 for each county in the state. We hope to get much more this year, or at least as much, for the highway department is just beginning to find where and how it can do the most good. Some of the counties have taken up the movement liberally, and all of this is of deepest interest to you as road contractors, and it is more or less familiar to all of you.

When it comes to materials for road building there is no material yet found that compares to good macadam road, and you are the producers of this material. In our specifications for state work we have recommended that clay should always be kept out of the crusher dust that is used with the binder. We ought to have good clean separation of the various sizes, because when stone is to be drawn from the bins, cones of the larger sizes are formed which fall to the outside and the variation of sizes is not obtained. We specify "stone-sand" instead of dust because it is a better term when practically applied.

I would suggest that some means be introduced to scatter the stone when stored in the bins in such a way as to get the natural mixture of sizes. The department is convinced that better freight rates for road building material should be secured. The cost of large road work is seriously raised by the price of freight, and it may be that with all the influence of the good roads movement together with the fact that the railroads themselves are tremendously benefited by the building of roads that some means may be found for special freight rates on road building materials.

Returning again to the road, the experts of the department consider dust as very objectionable on the finished road, and any measures that you are able to advise for dust prevention will add to the popularity of macadam roads more than any other one thing. The highway department has asked the legislature to cause the building of 400 feet of every kind of road as a sample, each properly marked for public inspection, both with the cost of such road and the materials used therein. It is believed that this will help in the selection of the best type of road for each particular requirement, and to secure this your cooperation is cordially asked.

The concrete road may possibly be the solution of road difficulties. Incidental to this I will say that a few years ago I was partly instrumental in having a concrete street laid around the public square in Bellefontaine, O., and it is in perfect condition today, the best street or road that I ever saw. Undoubtedly this type of street and road will be developed further, but for the present the cost is too high for adoption in rural districts where a road of

such quality is not needed or wanted as yet. This concrete street that I have mentioned cost about \$2.15 per square yard, which is about the same or a little more than the cost of a brick street or roadway. We now have before the legislature a petition to change the appropriation for road building from \$5,000 per county to \$10,000 per county, which, as you know, is badly needed to procure anything like the progress that should be made in our road work during the coming season. Certainly your cooperation in this direction will be of great assistance, and I hope that you will not fail to make your ideas in this matter known in the right character.

Mr. Mercer—In the matter of using clay in the top dressing, I will say that several years ago I built 400 feet of road in Wood County as a sample, using yellow clay, as found in that neighborhood, and mixed it up with the screenings and used nothing less than 1½" ring rock on top, rolling in the clay. It is now the best road in Wood County. I found that it cost about \$50 per mile more to use clay in this way and put it in right. Quarry strippings mixed up will not do this, but 25 per cent of the yellow clay as I have stated is now specified in all Wood County roads. The result is that these roads have less dust than any other. Automobiles do not make the same amount of dust on this 400 feet of road that I just mentioned because I have the opportunity of observing it very often.

Mr. Rheinheimer—Did you roll your clay in the surface of the road, wet or dry?

Mr. Mercer—Dry, mixed with screenings and then rolled. I only put in enough to bind the stone together and make a compact top dressing.

T. H. Judson, of the Barrett Manufacturing Company, Cleveland, O., was introduced, and he began by saying that the text of his talk would be "Dustless Tarmia." He related many instances of the dust curse as he had observed it, and stated that the company he represented were producing a product of coal tar, which when used in making top dressings of roads gave a waterproof surface which was hard, durable and the best for all purposes. He had a number of copies of four different road specifications by the use of tarmia, and he invited the attention of the contractors to this product. He remarked: "First make a good foundation, for which we recommend the use of stone from ½" to 1½" size and then take the heated tarmia and pour over the road filling up the voids. Then put on top a layer of clean screenings with as little dust as possible, and roll in the screenings with a 10-ton roller and a good, economical, impervious road is the result. The cost of such an application of tarmia amounts to about 25 cents per square yard over and above the cost of macadam, and it is both noiseless and elastic. His product is not recommended in connection with gravel and dirt roads, but when applied to macadam roads it is universally successful." Mr. Judson's remarks were listened to with interest.

President Patterson announced that the club would now take up the matter of universal or standard specifications.

S. M. Hall—A crushed rock producer recently asked me to furnish some stone on his work. He was located so that his business was largely confined to four townships, and the specifications he sent to me called for twelve different sizes of stone. My plant was not equipped for producing so many different sizes, and I was forced to cut out all but six, and it would be just as easy to confine the business to two sizes. It is impossible for the rock crushing business to continue unless the variation of sizes is cut down. Some of the specifications that one is invited to make bids upon are without rhyme or reason, having no bearing whatever upon the quality of the road produced thereby.

Mr. Wanders—It is my opinion that the best road material should be composed of all of the sizes produced in the operation of the crusher, taking all of the different sizes so produced, and together pack them into the road.

Mr. Ryan—I have invariably observed the best results in wearing surface to be those made with stone ranging 2" to 2½" sizes. I never saw a road rolled or otherwise finished that I could not plow up with a good team of horses. Unquestionably stone itself makes the best wearing surface, and it should be of sizes large enough to bear the traffic. In this way the best is the cheapest, and I think the farmer should have the best road for the least money. I believe that a uniform specification adopted by the State Highway Department for the sizes of stone to be used in state work would have a strong influence with all other public officials to adopt the same thing, and certainly uniformity is greatly to be desired. In this way it costs nothing extra. The road promoters must see to it that freights are equalized. There is actually no difference in the cost of hauling a car of stone ten miles or forty miles.

Mr. Loy—I move that we request the Ohio Road Commissioner to adopt standard specifications for the state work, and provide every county commissioner with a copy of the same. Seconded by Mr. Mercer, and carried.

President Patterson thereupon appointed Messrs. Loy and Mercer as a committee to draft a suitable resolution. Subsequently the following paper was submitted by the committee, and after some discussion was unanimously adopted as the expression of the organization.

Resolved, That it is the opinion of the Ohio State Stone Club that a uniform specification for the sizes of crushed stone to be used in road building would be of economic value to the producers and taxpayers of the different counties of the state, and believing the State Highway Commission to be competent authority and best qualified to make such specifications, we therefore request the said State Highway Commission to recommend to the boards of commissioners of the counties throughout the state such specifications as in their opinion can be uniformly adopted for road construction from crushed stone products, and at the same time using all the sizes of the product that necessarily come from the crusher when properly screened.

W. H. Loy,
GEORGE E. MERCER,
Committee.

Commissioner Wanders—All of the state work has been done with stone, except in a few cases where brick was purchased cheaper than stone could be procured in the special locality. Maintenance of roads will be a question of the future. Up to this time new road construction has absorbed all the attention of the department.

President Patterson—Wherever the price of stone delivered is too high to meet even the lowest competition for road work, it must be due to the factor of transportation charges. It is not at the door of the stone producer. The average price all last year was 50 cents per ton.

Mr. Detamore—Yes, there was plenty of stone to be had at that price. Probably a few cars could be found right now. (Laughter.)

C. L. Reinheimer—When stone is shipped to points only on the railroad that reaches the plant the freight rate matter is much simplified. In the matter of adjustments it is next to impossible to find the right men to make the joint rate.

Mr. Ireland—The railroads have "agreed rates" to all the cities. All the balance of the rates are made up by computation comparatively and proportionately. I have observed cases where the rates were different on road material and commercial stone. The standard specifications we have just recommended will doubtless have some influence in the ratings on shipments.

Mr. Roach—Rolling the top dressing for finishing the road is a great expense, and always has been a question with me if it does any good. I would like to hear the expression of members on this subject.

Commissioner Wanders—Possibly I am the cause of a good deal of the rolling specification. The department believes it a necessary principle to roll or iron out the finishing course. Rolling must be done as wet as the materials can be made. The rolling of dry materials can do no good. There must be water enough to make a billow of wet material in front of the advancing material.

Mr. Roach—Still one of the best roads I ever built was rolled very little. Much better than all others that were rolled and re-rolled at considerable additional cost.

Mr. Ireland—If we were not required to roll at all, and if crusher run material could be used without screening or other separation, we could build much cheaper roads—more miles of good road for the same amount of money. I don't consider the results of rolling roads worth the additional cost, and never have. Immediately after completion a rolled road is unquestionably good to look at, and is better for the time being. My experience demonstrates that a road built of crusher run stone—conveyed direct from the crusher to the car—is much cheaper in first cost, much more durable, and cheaper to maintain in good condition. The reason for this is the fact that every size from the coarsest to the finest is present in the delivered material, and when it is placed on the road all the voids are filled by recompacting the proportions of nature as to the relative quantities of the various sizes. In time it gets to be very much like a ledge of the parent quarry.

President Patterson—Mr. Ireland's experience is like mine. I built a road twenty-six years ago in Allen County, using crusher run stone as indicated, and in my opinion it is the best road in the country today. No matter how much money may be spent, when the road is finished a short time it turns into the same old thing.

Mr. Ireland—Yes. The only practical way is to chute the product of the crusher direct to the car. We have all been asked often, what it takes to make the best and cheapest road. Well, there are just two elements. One is to provide a good, high roadbed, the higher the better, using deep ditches on both sides if needed; and the other is to use the run of the crusher of crushed rock in sufficient quantity to give one foot of road metal.

Mr. Mercer—In my twenty years of experience I never saw a road built by this natural distribution of sizes.

Mr. Reinheimer—I can always tell whether a road has ever been rolled or not. I think a rolled road will give better wear than one that is not rolled—and it is probably worth the cost. By the way, what is the cost of rolling a road figured to come to?

Commissioner Wanders—We figure that the cost of rolling to amount to about 25 cents per square yard.

After deciding to visit the Senate Chamber in a body, where the good roads appropriation was under consideration as the topic of the evening session, the president declared the meeting adjourned to 9:30 a. m.

President Patterson appointed Fred K. Irvine and C. L. Ireland to draw up a set of suggestive resolutions, to be presented to the Senate finance committee, reflecting the attitude of the organization toward the road improvement measure, and to assist the highway department in every way possible.

F. H. Angell, the pulverizer expert of the Jeffrey Manufacturing Company, invited the attention of rock crusher men to the two handsome pictures of his swing hammer pulverizer, each showing a different type of machine. In fact, these pictures were the first thing in the hotel lobby to make a crusher man feel at home, and the next of course were Mr. Angell and his assistant, Mr. Ransome, who were the hosts of all.

After supper, the entire attendance of the convention was marshalled in the lobby of the Southern Hotel, and headed by President Allen Patterson and Secretary S. M. Hall, marched through High Street to the Capitol. Road Commissioner Wanders had already provided seats for the entire practical road building talent of the state of Ohio, to witness the discussion of their lawmakers in providing the means for state road work now in contemplation.

Fred K. Irvine was designated spokesman without appeal to represent the Ohio State Stone Club, and to present the resolutions and recommendations. After explaining the attitude and interest of the practical experts in road building, of the quarrymen of Ohio, who compose the membership of the organization, and offering the services and assistance of the club as a body, or any of the individual members thereof, in the solution of any practical problems that may now or hereafter be developed in the deliberations of the legislature in the matter of road building, the formal resolutions were read.

Standardization of the sizes of stone for road building, and uniform specifications for road construction were recommended. The placing of all road work in the state under the highway department for the sake of uniformity, and to build to a definite plan of main market roads with proper lateral or branch roads, to replace the present spasmodic and disconnected system of local accommodation was suggested. An appeal was made for an appropriation of \$10,000 per county, instead of \$5,000, as it now stands, to carry on the work. The club was well received and given a courteous hearing.

Professor C. E. Sherman, of the engineering department of the Ohio University, advocated the establishment of a roads material laboratory at the university to make tests for the highway department, as well as county commissioners.

George W. Lattimer advocated an appropriation sufficient to allow each county \$10,000 for road work. He held that the maintenance of roads after they are built was quite as important as the building of new roads.

AFTERNOON SESSION, MARCH 3.

At the appointed hour the delegates were all in their seats, and President Patterson brought the meeting to order with a suggestion that the usual banquet be dispensed with, so that the delegates could have the opportunity to take the early evening trains out of the city.

Secretary Hall read a number of communications containing expressions of congratulation, etc.

The two sets of resolutions already mentioned were officially recorded.

Mr. Ireland suggested that it would be a good thing for the club to retain an attorney to keep the officers posted on matters of interest and importance that may come up at Columbus.

A. A. Hall—Just for the information of members I will say, that the Columbus Board of Trade and the Chamber of Commerce keep a department, for this kind of service for members.

Mr. Ryan—I would suggest that the club cause a bill to be drafted and brought up in the legislature to provide for standard sizes of stone, and uniform specifications for road building. We should have laws to protect the rights of the quarrymen in all parts of the state. Such laws as will place the quarryman and contractor upon an equal footing with the engineer and county commissioner in the matter of settlements and in controversies. It is no more than reasonable and right.

After some discussion favorable to this suggestion, the matter was referred to the committee on legislation.

At this point President Patterson introduced H. C. Innes, C. E., the representative of the Indian Refining Company, of Cincinnati, O. He read a comprehensive paper recommending the use of liquid asphalt as a binder for the top dressing of roads. It is a new product mined and prepared in Kentucky. Mr. Innes is an expert and scholar of considerable attainments, and presented his material very convincingly. The waterproof and dustless qualities claimed for the material are worthy of attention in connection with the tentative price of treatment of roads with the material, viz: 5 cents to 7 cents per square yard. This means from \$528 to \$739 per mile of roadway eighteen feet wide. This treatment, of course, being an addition to the expense of the macadam road. He also claimed that the expense of maintenance would be very low.

Mr. Ryan criticized the paper as being based upon theoretical assumptions, and felt that the contractors could not afford to recommend such an expenditure of money to find out if the material might be worth it or not. He remarked, the men in this room have constructed nearly all of the roads in Ohio, hundreds, yes, thousands of miles of them, and there are no better in the world today.

A vote of thanks was tendered J. C. Wanders, state highway commissioner, for copies of the Report of Highway Department furnished to all the members.

A. A. Hall mentioned the good work being done by the Ohio Good Roads Federation. He stated that he understood that the participation of this club was to be requested by an officer of that organization.

President Patterson then introduced Archibald H. Huston, vice-president of the Ohio Good Roads Federation, who briefly sketched the plan of the work now being done by his organization, and introduced the following resolution:

Resolution to Cooperate with the Ohio Good Roads Federation.

WHEREAS, The State Highway Department has been established in Ohio several years, and the work accomplished by the department in the early stages of its existence was necessarily educational and experimental, and was necessarily conducted along these lines rather than with any definite or fixed plan that would result in a connected system of through Market Roads, and

WHEREAS, The work of the department on State Aided Roads has now progressed to the point where it is necessary to formulate plans for a uniform method that will, in the years to come, give the best general and uniform results throughout the state and,

WHEREAS, It is evident that the present law relating to State Aided Roads is defective in that there is no authority for the State Highway Department to construct or maintain the State Aided Roads, except upon the petition of the abutting property owners (who pay but 10 per cent of the cost of construction and maintenance), approved by the county commissioners and recommended to the highway department, and

WHEREAS, It is demonstrated that under this plan we can never hope to secure a connected system of good Market Roads throughout the state, owing to the fact that there is no definite fixed plan for designating those roads which will eventually connect up into a connected system, thus leaving gaps or stretches of unimproved roads in the State Aided Roads for years to come, and

WHEREAS, It is evident that better general results can be accomplished for the citizens of the state by placing the authority to designate, construct and maintain all State Aided Roads, under the jurisdiction of one department rather than within the jurisdiction of the eighty-eight boards of county commissioners within the state, and

WHEREAS, The Ohio Good Roads Federation is composed of delegates from the various county good roads associations in the state of Ohio, and is organized for the sole purpose of devising the best and most practical plans for highway construction and highway maintenance within the state of Ohio, and none of the officers or members of the executive committee of the Ohio Good Roads Federation are interested either directly or indirectly in the production or sale of any road material or supplies and the Ohio Good Roads Federation is, therefore, working independent of any influence, but with the sole object in view of the greatest good for the greatest number. Therefore, be it

Resolved, That we, the Ohio State Stone Club in annual meeting assembled at Columbus, Ohio, do recommend:

That the General Assembly of Ohio amend the present statute relating to State Aid and Construction of Highways (which was passed as Senate Bill No. 286), so that it shall become the duty of the State Highway Department to designate, construct and maintain under the supervision of the State Highway Department, all State Aided Roads in each of the eighty-eight counties on which state aid money is expended. Also, be it further

Resolved, That we most heartily endorse the good and impartial work being done by the Ohio Good Roads Federation and do hereby pledge ourselves to support the recommendations of the federation to the legislature and to the support of the State Aid Road law, formulated on the above lines, and we do further recommend to our members, individually, that they lend their assistance to the Ohio Good Road Federation in its work.

The president appointed a committee to consider and report on this resolution. Messrs. Pogue, Loy, Detamore and A. A. Hall composed this committee. Later they reported favorably, and the club unanimously voted to cooperate with the Good Roads Federation.

Mr. Thistlethwaite, representing the F. L. Smith Company, talked about the Symonds crusher, which he claimed was half as big, half as heavy, half the trouble and double the output of all the crushers known.

James K. Bruner, representing the Macomber & Whyte Rope Company, of Chicago, talked on the subject of mistreatment of wire rope by using sheaves that are too small. He mentioned the new brand of non-twisting cable that his company has just introduced. His talk was both interesting and instructive, and was cordially received by the members. In conclusion he handed around souvenir lead pencils which were so good that this report is being written with one of them—and that is going some. The convention then adjourned until 1:30 p. m.

MORNING SESSION, MARCH 3.

With a business-like rap of the gavel, President Patterson brought the convention to order, and proceeded to introduce Arthur Thatcher, secretary of the Ohio Association of Contractors.

Mr. Thatcher spoke of the benefits of coöperation between the different classifications of contractors, in the matter of labor disputes, railroad discrimination, and other matters of common interest to the men engaged in the contracting business. He asked for the coöperation of the State Stone Club in matters of this character.

Upon the topic of "The Quarrymen of the Hour and the Minute," President Patterson called upon W. H. Loy.

Mr. Loy, with becoming modesty, said:

I hardly feel competent to talk upon such a subject in the presence of so many men of greater experience than mine own. In digesting the work of this very profitable meeting, one thought occurs to me—we must do away with guesswork in the basic and vital factors of the rock-crushing and road-contracting business. The cost of production is too much of an unknown quantity. We have learned to keep a "disbursement journal," which at the end of the year tells the tale of total cost that can readily be distributed upon the total number of tons. Our season is short, and fixed charges keep on after the plant is shut down and no longer producing. I know that the actual cost of producing stone is much more than many of us are willing to admit. The pride of each of us in his own managerial ability makes us keep quiet too much. I am not sure that I would recommend the telling out of all the trivial details, but if there was more speaking out in meeting it would do a whole lot of good all around. It does not pay to guess at such things.

Mr. Tarbox—Too many of us go to the same lettings. If all the contractors who are not interested would stay away, that would do some good.

Mr. Ryan—Every quarryman has been troubled with these questions. If I now had 5 cents a ton for every ton of stone I have produced, I would be a very rich man. I am persuaded that stone which looks so plentiful today in Ohio will look like timber does now in fifteen years' time. You can all recall the time when our forests were considered to be exhaustless. Where are the trees that once covered northern Ohio like a mantle? Gone, and only a few stumps and saplings remain. We must be economical in all directions and get the value of our goods. Everybody we deal with has their business reduced to a system, while we alone, holding the principal investment, go it haphazard. Take the ability and capital of the club and put it together and we will at once be a power among ourselves, and before the legislature and everywhere else we may want to make our organization felt. We must get more money for our product than we have been getting. The danger feature of our business is something we cannot figure on. Sixty cents per ton should be the minimum price, but instead of that 35 cents is about the average price all around. I am guilty with the rest. It is not the new hammer, or drill, or any other tool that we must look at, but the future.

A. A. Hall—I want to know how to get at the cost when you use day labor?

Mr. Ireland—You can't tell just that way—I mean by the day—but you can figure it out at the end of the year.

A. A. Hall—But a man can easily tell by piecework. I am running that way now, and getting out just about three times as much product with the same number of men.

Mr. Lee—All my men are now working piecework. The men make twice as much money that way, and the company twice as much profit per man.

Mr. Ireland—Actual cost of production is the most important thing for the stone men of Ohio to decide or find out. I found two suits for damages when I came back from the South, one for \$10,000 and the other for \$6,750. Both will have to be defended and settled at some cost. One never knows when or how an unexpected item of cost will show up, and this kind of thing has to be provided for. I figure that our cost of production in this way often runs up higher than our most liberal calculations. My minimum price last year was 50 cents per ton; at one quarry it was 60 cents. We count costs different from most people, and I feel sure that most stone men figure the cost too low. All of

our quarries are now operated upon the piece system. We carry nineteen separate items of cost, and I look at them in the shape of a tree, like the picture shown here, the trunk of which represents the cost of crushing stone.

When it is all put together it will surprise anybody who has not gone over it before. I recommend that every man here apply this to his own business, and



see if it does not have the effect of changing his views in the matter of cost. We charge off 10 per cent for depreciation of plants and equipment, but nothing upon the quarry itself. This was a concise object lesson to those in attendance, worthy the cost of belonging to the club for many a year.

Mr. Weldon—My experience in mining has taught me to estimate all costs upon the basis of the ton. I use four groups of costs: Dead work, that does not directly produce anything; labor on the product, stone; operating account and supplies and commercial expenses. All of these are distributed over the number of tons produced. We make a comparison of costs at the end of every month.

S. M. Hall mentioned the various bills now before the legislature that have interesting bearing upon the quarry business, Senate Bills Nos. 55 and 98, and House Bill No. 77. He briefly stated the status of each.

Mr. Reinheimer—I understand the governor has expressed a profound dislike for House Bill No. 77. Do not think any progress will be made with it.

Secretary Hall read a letter from Charles L. Johnson, regretting his inability to be present to read a paper on the subject of "Concrete for Culverts and Small Bridges and Retaining Walls."

Mr. Irvine, as substitute for Mr. Johnson, mentioned a few of the best practical suggestions for the road contractors, as gleaned from the current literature of the concrete industry, as well as his wide personal observations. In conclusion a suggestion was expressed that ultimately all stone producers would be extensive concrete contractors.

Mr. Mercer said that the main drawback to taking on heavy concrete work was the fact that nearly always some irresponsible parties are on hand to bid in the work down to cost, so that it is better business to step out and furnish the unfortunate successful bidder with stone material after taking security for the pay.

President Patterson announced that the time had arrived for the annual election. In spite of his protests he was immediately reelected by acclamation. At last he found that there was no use in trying to get out of the responsibility and the honor, and said: "I feel like there are too many good men in this club for one man to hold the presidency for two terms. The responsibility is much more than it seems, and we have got a whole lot more to do. The club has certainly made good for its members in many important matters. Just one thing. Please answer letters that reach you from the president and the secretary. Nothing is so discouraging as to fail to get a reply to official letters. Nearly all the members have been very remiss in this regard.

Please remember that you are helping the club by answering official letters. I assure you I feel honored by this reflection.

Four vice-presidents were elected, as follows: A. A. Hall, C. L. Ireland, C. W. Ryan, W. H. Detamore.

The executive committee was elected, consisting of the following members: C. L. Reinheimer, C. L. Ireland, C. W. Ryan, S. M. Hall, A. A. Hall, H. L. Tarbox, George E. Mercer, J. W. Weldon, Jr.

Secretary Hall earnestly requested to be relieved of the duties of secretary-treasurer after three years of continuous service, and nominated W. H. Loy. Later the executive committee considered this matter and announced the election of Mr. Loy.

Standing Committee Chosen.

Committee on Legislation—C. L. Ireland, N. R. France, J. H. Crawford, S. M. Hall, S. A. Swint, L. B. Sisson, W. H. Loy.

Committee on Weights and Measures—George E. Mercer, C. L. Ireland, S. M. Hall, M. P. Goetschius, William Hendrickson, J. H. Dwyer, C. W. Ryan.

Freight Transportation—C. L. Ireland, S. M. Hall, H. L. Tarbox, M. P. Goetschius, Alex. Wagner, C. L. Reinheimer.

President Patterson then introduced P. N. Denison, representing the E. I. du Pont de Nemours Company (which caused a smile because every man present knew him well) to read a paper.

BLASTING SUPPLIES.

By P. N. DENISON.

How many of you realize what an important part the item of blasting supplies bears to yearly dividends?

Fuse and caps, lead wire, batteries, exploders, all mean dollars in, for the man who knows, and dollars out, for the man who does not appreciate their importance.

The smallest items of expense are connected with your blasting, and for that reason, perhaps, they are usually given but little attention. But cannot a flea stir up trouble out of all proportion to its size?

In the use of dynamite, I have found many and various complaints; the load burns in the hole instead of exploding, or partly burns and then explodes; a part of the load is found in the debris or in the bottom of a drill hole after the blast; in a line of holes fired by a battery, one or more fails to detonate, which may possibly "stand up" the shot and cause considerable inconvenience and expense. These and many other complaints, the explosive salesman runs across, and in the vast majority of cases the cause can be traced direct to the blasting supplies in one way or another.

I mention the most common grievances. To burn your dynamite with no results costs money, of course, but this is usually found in mud-capping, where caps and fuse are used; the amount consumed is small and the cost is light compared with the loss and very probable chance of serious accident where a ledge shot is made, using exploders and a battery, and a part of the dynamite is afterwards found in your quarry or in the bottom of a drill hole which failed to come out.

The burning dynamite is usually caused by a weak cap or the fuse is imbedded in the dynamite above the cap, and sets fire to the explosive before reaching the cap, which causes an incomplete detonation.

Dynamite will do the work if you treat it right, but you would not expect a horse to win in a 2:16 pace drawing a stone wagon instead of a racing cart, and don't look for the dynamite to do it all alone. It must have the proper help and equipment to make you money.

Your blasting supplies are many times responsible for the dynamite left in the quarry after a blast. An exploder of insufficient strength to compel the best work from chilled or possibly partly frozen dynamite, will do it. The wrong position in the load for an exploder will do it. Too much dynamite in the hole for one exploder to take care of and detonate properly, may bring the same results. Or it may be with the wires; bare lead wire instead of insulated, the wrong sized wire, faulty connection, a weak battery, or unskilled manipulation of same, all tending to reduce the current you should obtain through your battery and thereby increase the chance of skipping an exploder in the line. For it is possible with an insufficient current to detonate only a part of your holes; these may carry out a hole or two that missed, and the consequence is that your men find unexploded dynamite when loading their cars, and many serious accidents have resulted.

I know of a recent case where the stone was cleared up after a blast, when it was found that the corner hole of the shot had been missed. The bottom had not been broken out and in the two feet that was left, this hole and its contents showed plainly. A Hungarian working at that point recognized the chance for a pretty, little blue blaze and set fire to the dynamite with his cigarette. Other workmen saw the flame and warned him to get away, but he just grinned and stayed there until the ensuing blast blew both grin and life away. He was no doubt one of those misguided mortals who thought that dynamite would always burn without exploding.

To get back and explain my statements: You all know that ordinary dynamite will freeze at about 45° Fahr. and chilled between 50 and 55° Fahr. You can practically get no results from frozen dynamite and lose between 20 and 30 per cent of its strength when using it chilled. By an exploder of insufficient strength to compel good work, I mean that a strong detonator will do more work with your load, if it is chilled or partly frozen, than a weaker one, and that nothing less than double strength exploders or quintuple caps should be used in fall, winter or spring blasting.

The wrong position for the primer in the load is in the middle of the charge. Some speak of the action of dynamite as down, and that of blasting powder as up, which is not strictly true, but it is true that the action of a cap or electric exploder is strictly in line with its business end, as can be demonstrated any day on an old shovel, or piece of flat iron, and the loaded end of the cap should always point toward the greater part of the charge. In other words, it should be placed in or near the top of the charge, pointing down. In the middle of a charge, its action is down and the cartridges on top are apt to be incompletely detonated. If chilled, some may be thrown into the quarry, if not there will be

more obnoxious fumes and the loss of strength you should have had.

Again, a strong detonator is only good for such dynamite which will only detonate completely, a certain amount; therefore, when loading twelve to fifteen pounds or more to a drill hole, you will get more from your dynamite by using two exploders to the hole, one near the bottom and one near the top. This has the double advantage of an instantaneous detonation at both ends of the load, getting a maximum explosive force, or, in case one exploder skipped, the other might serve.

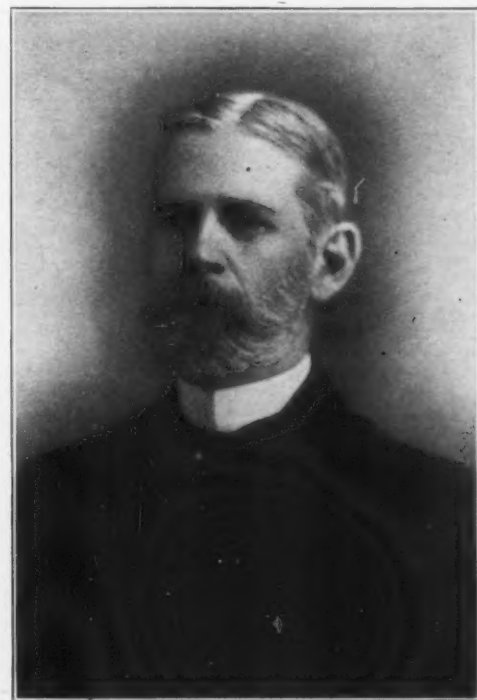
When it comes to the wires, there seems to be a variety of opinion among the blasters as to what is right or wrong.

I heard one blaster challenge another that he could get better results when exploder wires, lead wires and all were under water than when they were perfectly dry.

This came to a wager and was tried out, much to the benefit of the quarry concerned.

One man laid out his wire on dry ground, connected his exploders and shot them all from the battery. The wire was camped out at a water-hole, using bare lead wire attached to a battery in the bank, with the exploder and lead wire all under water. I believe he got about a third of them to go. His current escaped all along the line until he had less than two jerks and a squirt left.

Remember that every connection made in your lines means a small leakage unless soldered, and I know of but few going to that trouble. They should be made as tight as possible and each connection kept off the ground. It has been demonstrated that No. 21 connecting wire, and No. 14 wire for leading wire, are the sizes most suitable for carrying the current from a blasting machine to the blast. Do not deviate from these sizes, and for the sake of a dollar or two, do not allow your lead wire to become a patched up piece of small lengths, all ragged, with bare places touching the ground or label to touch another wire and short circuit your entire line. Keep your lead wire up in shape and get



F. H. ANGELL, PULVERIZING EXPERT OF THE JEFFREY MANUFACTURING COMPANY, STANDBY OF THE ENTERTAINMENT CORPS.

the maximum current from your battery to the exploders, without losing half of it on the way, and perhaps causing a hole or two to miss fire.

I have seen a new thirty-hole battery, on 200' of lead wire, connected with fifty 4' exploders, all under the most favorable circumstances, on dry ground, in the open, the exploders laid out so as not to touch one another. This trial resulted in detonating thirty-eight out of the fifty exploders. The twelve remaining, which I may say were scattered here and there along the lines, were then connected up and all exploded.

Now, apply this to yourself. Take your No. 3 thirty-hole battery, which has been left out in the rain a few times, and otherwise neglected as "only a battery." Connect it with a lot of junk wire, full of knots and bare places, and try to put off a thirty-hole shot. The chances are your current is escaping through all the bad places in the line, and there won't be enough left to do the work. Some of the holes missed, and then comes the "kick" on the battery or on the poor exploders.

You need the best of everything in the blasting supply line.

Another thing, while I think of it. Work the rack-bar on that battery like the thump of a pile driver. Put all your weight on it. Try to punch the bottom out of the box. That is the only way to generate your full current. Churning it up and down before the stroke does no good. Bang it down once and for all.

The quarryman uses the electric exploder as a rule, but let me illustrate the value of proper caps by borrowing from an article written by A. W. Warwick, an experienced engineer, whose work has been in the western mines where the fuse and caps are still used in preference.

Applying to the deterioration of caps: A triple strength cap, when fresh, completely detonated a cartridge of dynamite.

A triple strength cap, after being twenty-four hours under ground, exposed to the dampness of the mine, caused an incomplete detonation.

A triple strength cap, forty-eight hours under ground, incomplete detonation with red fumes; seventy-two hours under ground, cap exploded without detonating, and after one hundred and forty-four hours under ground, the cap would not explode at all.

Another experiment: Three drifts in the mine were selected, having as nearly as possible the same kind of rock. The different caps were used for one week in each of the drifts, and the advance of the drifts carefully measured. The number of cubic feet removed by a pound of dynamite, using 40 per cent, was taken as the measure of work done in each case.

The average for the three drifts, using triple strength caps for one week, was 18.6. Average for the week they used quadruple caps was 23.4, and for the quintuple caps was 23.8; fully 35 per cent more work being done by using quadruples or quintuples against the triple strength caps.

Comparing the costs, when using quadruples, the distance driven was 72' at \$5.75 a foot. With quintuples, 72½' at \$5.72 per foot, and with triple strength caps only 64' was driven at a cost of \$6.32 per foot. The trial was made in cold weather, when the dynamite was apt to be chilled, but the difference in cost between the triple caps and the stronger grades should emphasize clearly that using the best exploder to be had is far cheaper in the end than trying to get along on an article that costs a little less to buy but eats into the profit later on.

This should also show you that a proper storage place for your blasting supplies is absolutely necessary, and in my travels I must say that I find but very few quarrymen paying any particular attention to the storage of their supplies. Only recently I found a blasting supply magazine. It was a box about three feet square, a hole had been dug in the ground, behind a barn, deep enough to submerge this box about half way, and a man with a shovel had simply lifted out the dirt and packed it around in a circle, so that when the box was put in the hole it was really in the middle of a small lake in case of a rain. It had been snowing instead of raining, but the snow had melted on top of the box, and on opening we found the pasteboard exploder boxes thoroughly saturated. As it happened they had no caps on hand, but although exploders are, comparatively speaking, waterproof, a treatment like this is a sure start for future trouble, and this company had just entered one small complaint, which easily ran back to their mud-box, or hole, I would call it. This, of course, is an extreme case, and when brought to the attention of the management their storage place was changed, but it will pay you all to look around and see what treatment is being given your blasting supplies.

Your fuse, caps and exploders should be kept in a perfectly dry place, although never in the same building with your explosives. A little care in this regard will amply repay you.

These practical suggestions were very well taken by the members as coming from Mr. Denison, who has given a great deal of study to matters of this very kind.

John K. Broderick, of the Broderick & Bascom Rope Company, St. Louis, was asked to talk about rope. It is easy for him to talk upon almost any subject. He first spoke of the technique of braiding wire rope and the latest method of electric welding, which is almost invisible. He spoke of various qualities of wire for making into rope, preferring the English product as the best. He suggested that more care be used in taking wire rope off the reel when it arrives at the quarry so as to prevent making kinks that will seriously damage the goods. He advised the use of large enough sheaves—don't be afraid of getting them too large. Then get the right size and the right grade of rope for the purpose intended and treat it right, with proper lubricants, and you will always get good service out of your wire rope.

J. W. McCord, secretary of the Ohio Shippers' Association, was next introduced. He stated that some of the members of the Stone Club are members of his association. He took up the discussion of freight rates, the annual recurrence of which is one of the features of the meeting. Every member participated in the argument, and all got answers for their questions as far as this was possible, for Mr. McCord was exceptionally well posted on the entire subject. More than an hour was profitably taken up in this way, and Mr. McCord never lost his patience or his balance once. At the close of the discussion he suggested that the Stone Club co-operate with the Shippers' Association in the same way that several similar organizations have done.

The club adopted a hearty vote of thanks to the following gentlemen for appreciated services and courtesies: J. C. Wanders, state highway commissioner; J. W. McCord, secretary of the Ohio Shippers' Association; S. M. Hall, the retiring secretary-treasurer; the daily press of the city of Columbus, and ROCK PRODUCTS.

The convention then adjourned *sine die*.

NOTES OF THE MEETING.

H. A. Johann, with "Tisco" manganese castings for sale, and the best steel rule souvenir you ever saw, was on every part of the job every minute.

J. H. Burton, of the Burton Powder Company, announced that his personal headquarters will hereafter be in the Fisher Building, Chicago. He got some nice pigskin pocketbook souvenirs just about ten minutes before the bunch went broke.

If you didn't get an introduction to "Sal Adams" in the dining-room right after adjournment, there was little use of being in Columbus. Either Al Patterson, Charley Ireland, John Broderick or Sam Hall can tell how it happened.

Madison Whiteside, the genial Columbus representative of the Etna Powder Company, gave a theater party at Keith's Vaudeville House one evening. He now has a magazine at Columbus with a plentiful supply of the needful on tap.

It was too bad that the official banquet was cut out. The following composition was found in S. M. Hall's room. It was lost until now:

TOO GOOD TO MISS.

BY S. M. HALL.

To hustle when you want to
And to hustle when you don't;
To say I can, I must, I will,
When you want to say I won't;
To push with all your might and main,
And stop at nothing less,
Will swing that heavy, old gate wide
That leads to true success.

I've taken this good old "jingle" and nailed it up on the front of my desk, and looking neither to the right nor the left, have gritted my teeth, and with my eyes "set" I've taken orders, accepted the trust, and tried to grind out a speech. In the language of the ladies' club program, I've prepared a paper, or, in political parlance, I have an address. It's new business to me, and when I remember that Noah was 600 years old before he learned ship building, I, the young spring chicken that I am, feel that I am taking long chances in attempting a trial flight with my pin-feathers before this august assemblage of "old stingers." Whatever the result, I shall have in my inmost heart the same feeling that possessed the old darkey whom a gentleman met on a country road of a little town in Georgia, saying to him: "Uncle Ben, can you change ten dollars?" The old man coming back with: "No, boss, Ah can't change ten dollars, but Ah cert'nly does thank you fo' de compliment."

You know:

I'd rather be a Could-be
If I cannot be an Are;
For a Could-be is a May-be,
With a chance of touching par.

I'd rather be a Has-been
Than a Might-have-been by far;
For a Might-have-been is a Hasn't-been,
But a Has was once an Are.

There is only one drawback to this thing—I may become so taken with it that it will become a habit.

We had a dog in our town that we boys would catch and tie a can to his tail on every occasion. Do you know that Frisk got so that he couldn't pass a tin can on the street without stopping and backing up to it.

The longer I think of the task given me for this evening, the stronger I wish by the powers that he had assigned some subject to being the case, the flights of my fancy would have had some prescribed limits. Speaking of flights, the teacher told her scholars in composition:

"You should not attempt any flights of fancy, but simply be yourselves and write what is in you."

As a result of this advice, Johnny Wise turned in the following composition:

"We should not attempt any flights of fancy but rite what is in us. In me there is my stummick, lungs, hart, liver, two appels, one piece of pie, one stick of lemon candy and my dinner."

But now the order comes to me: "That's all and that's Hall," and you that know me know for a sure thing that I'm so used to taking orders (although I never take what I can't get my hand on), that even if I'd have dished out to me something as complex as the butcher's directions to his boy, when he said: "Boy, did you send up old man Jones' liver?" "Yessir, I did."

"And take Mrs. Thompson's legs to her?" "Yessir."

"Well, stick Mrs. Smith's ribs and Bob Harris' hindquarters in the refrigerator, and we'll shut up shop."

Yes, gentlemen, if the order would come in that way, Hall would be there, with his pencil freshly sharpened, with a fresh tablet, with an assurance of being to the "manor born," and there, too, Hall would deliver the goods.

But here I am with no subject; no chance for concentration; no sand under the wheels, and the power in me is doing just what a full head of steam does for the driver with a sharp grade and an empty sand box: Round, round round; why, I don't know where I am going, and I don't believe you'll know when I get there. I could have handled any old subject. It might have been the "big stick" and, who knows, now that T. R. will take to Africa for big game but that I might have wielded the thorny knob in an effective way.

It might have been the life, love, labor, liberty and long suffering of one of the numerous trilobites, whose multitudinous remains go to make up the rock of my part of the country; or it could have been the deplorable "hard-upedness" of the "400" of our New York, a tale of the "simple life" on Fifth Avenue. As I said, any old subject but stone; for I take it that a man who would talk stone here among men who sell stone, measure stone, handle stone and figure stone for nine months of the year would be given a stony stare.

So under the circumstances, if I pluck a blossom here, pick a flower over yonder, gather a bloom there, and by so picking and plucking and gathering I disturb the bees and in the excitement you get stung, I take it that you will have to stand for it.

An old Atchison colored woman, who has a great many children, takes in washings and works like a slave, was called upon by a doctor, who told her she must be vaccinated. The old woman was good and mad. She said she had no time to be sick with vaccination, and besides that she could not spare one of her arms; that the children would starve and freeze if she could not do her laundry work. The doctor said: "Well, aunty, I will vaccinate you on one of your lower limbs." "No, sirree," said aunty, "I can't spare one of my legs, either." The doctor said kindly: "Well, what spot could you spare—because you must be vaccinated?" The old colored woman thought and thought, and finally said slowly:

"Well, Lord knows, I don't never get no chance to sit down." Stand for it? During the strenuous times of the past year many a firm has had to stand for it. Judging by things I have heard in my trips around, there are those who have lived on Easy Street; those, in the language of the sport, who have been on "velvet"; and then at the same time there are others who no doubt have traveled the rocky road, who have seen the procession of months, weeks and days go by, and to whom their going has been a relief, in that the going days have brought nights whose darkness covered the misfortune of sleep; night, in which the "grit" in them had time to gather force and power for the next day's battle.

When the whole blame world seems gone to pot, and business is on the bum, a two-cent grin and a lifted chin helps some, my boy, helps some.

The year, to those on whom prosperity has shown, has been and is a beautiful golden past; to the other fellow it is a haunting nightmare, gladly forgotten. Stand for it?

A happy world if you and I—just you and I—
Should laugh instead of worry;
If we should grow—just you and I—
Kinder and sweeter-hearted,
Perhaps in some near by and by
A good time might get started;
Then what a happy world 't would be,
For you and me—for you and me.

To this sentiment I take off my hat. And when we remove our hats we uncover the best territory for us to work on. Cheerfulness is like faith. "Hard to maintain, but it delivers the goods." And knowing that "opportunities, like eggs, come one at a time," I know that with the field, the courage and the chance, we can accomplish it.

Lincoln said: "There are opportunities for everyone who is able to convince the world by his industry that he is worthy of success."

I offer to the Ohio Stone Club Edwin Grover's creed: "I believe in the goods I am selling; in the firm I am working for, and in my ability to 'get results.' I believe that honest goods can be sold to honest men by honest methods. I believe in working, not waiting; in laughing, not weeping; in boosting, not knocking, and in the pleasure of selling goods. I believe that a man gets what he goes after, that one order today is worth two orders tomorrow, and that no man is down and out until he has lost faith in himself. I believe in today and the work I am doing, in tomorrow and the work I hope to do, and in the sure reward which the future holds. I believe in courtesy, in kindness, in generosity, in good cheer, in friendship and honest competition. I believe there is an order somewhere for every man ready to take one. I believe I'm ready—right now!"

Good quality, good treatment and good profits are the foundation stones of all success. So here and now, standing on these, as the limerock footing course of our business, we will have a broader view toward a wider horizon of a sure prosperity.

Entertainment features at conventions held in Columbus are never complete without F. H. Angel. When you see him you are sure to think of three things, the name Jeffrey, that wonderful swing hammer pulverizer, and some new achievement that has been worked out. The fact is Angel is always on the job, and he prefers entertaining to anything else, with the possible exception of taking orders for pulverizers. Two large pictures of the latest type "B" swing hammer pulverizer were shown in the lobby during the convention, and these are illustrated on page 64, with a detailed description, together with the newest phase recently developed, now announced for the first time, air separation, to secure the finest division of particles known to the science of pulverization.

Very Favorable Reports.

The McLaughlin-Mateer quarry, Kankakee, Ill., reports an unusually busy season. At present the quarry is shut down subject to a general overhauling preparatory to the regular summer run. The company has had sufficient work during the whole slack season to warrant the employment of half a hundred men, a rather unusual thing for the winter.

Quarrying Facilities to be Increased.

MYERSTOWN, PA., March 6.—The capacity of the stone quarry on the land of Miss Sallie Bassler, west of town, is to be greatly increased in the near future. The General Crushed Stone Company, which is operating the place, is making extensive improvements. Contracts for the placing of machinery of various kinds, representing an outlay of about \$50,000, have already been given and the work of installing it has been started.

Prepare for Increased Business.

CAPE GIRARDEAU, Mo., March 11.—Edward Hely, a crushed stone contractor of Cape Girardeau, Mo., is preparing to build a new plant to take care of his increased business. He recently secured the contract to furnish all raw material to the new cement plant of the Cape Girardeau Portland Cement Company, which has a capacity of 1,500 barrels.

Rock Crushing Plant Burned.

The rock-crushing plant of the Georgia Railway and Electric Company, Atlanta, Ga., was recently destroyed by fire. The loss is estimated at \$10,000.

Concrete

Machinery Men to Organize.

Preliminary steps have been taken toward forming an organization of manufacturers of concrete machinery. Many attempts have been made in the past, but it now looks like there will be an association of some kind formed. At the Chicago show the manufacturers held an informal meeting and elected temporary officers as follows:

H. G. Simpson, Simpson Cement Mold Company, Columbus, O., chairman, and Sid L. Wiltse, Cement Machinery Company, Jackson, Mich., secretary. The committee appointed to draw up plans and bylaws for a permanent organization is composed of Messrs. A. J. Weatherwax, Miles Manufacturing Company, Jackson, Mich.; J. H. Stewart, Cement Tile Machinery Company, Waterloo, Ia., and W. G. Elliott, Edmondson Concrete Machinery Company, South Bend, Ind.

A sum of \$50 was raised to defray preliminary expenses.

The association will cooperate with the show managers looking toward the elimination of disagreeable features which have been the cause of much discontent in the past.

The committee on organization met later and a general outline of the permanent organization was drawn up. It was decided that the body shall be known as the Concrete Machinery Manufacturers' Association. It is to be incorporated under the laws of the state of Illinois for a term of thirty years, with a capital stock of \$5,000 in fifty shares. The object of the association, as expressed by the committee, is to conserve the interests of the manufacturers of concrete machinery and allied industries, and thereby to create greater confidence in concrete products. It will also make necessary provisions for its members at conventions and exhibitions. It is expected that

The charter members of the organization are as follows:

Ashland Steel Range and Manufacturing Company, Ashland, O.
Ballou Manufacturing Company, Belding, Mich.
Besser Manufacturing Company, Alpena, Mich.
Burrell Manufacturing Company, Bradley, Ill.
Cement Machinery Company, Jackson, Mich.
Cement Tile Machinery Company, Waterloo, Ia.
Century Cement Machinery Company, Rochester, N. Y.
Clover Leaf Engineering Company, South Bend, Ind.
Coltrin-Hoos Manufacturing Company, Jackson, Mich.
D. & A. Post Mold Company, Three Rivers, Mich.
DeArmon-McKinney Manufacturing Company, Piqua, O.
Edmondson Concrete Machinery Company, South Bend, Ind.
Eureka Machine Company, Lansing, Mich.
Foote Foundry Company, J. B., Fredericktown, O.
Gauntt Manufacturing Company, F. G., Ft. Wayne, Ind.
Grob Bros., Kendallville, Ind.
Hall-Holmes Manufacturing Company, Jackson, Mich.
Hayden Automatic Block Machine Company, Columbus, O.
Ideal Concrete Machinery Company, South Bend, Ind.
Illinois Gravel Company, Princeton, Ill.
Indiana Concrete Form Company, Indianapolis, Ind.
Inman Concrete Block Machine Company, Beloit, Wis.
Kent Machine Company, Kent, O.
Kramer Automatic Tamping Company, Peoria, Ill.
Miles Manufacturing Company, Jackson, Mich.
Miracle Pressed Stone Company, Minneapolis, Minn.
Multiplex Concrete Machinery Company, Elmore, O.
Peerless Brick Machine Company, Minneapolis, Minn.
St. Paul Cement Machinery Company, St. Paul, Minn.
Sanford Concrete Machinery Company, Toledo, O.
Shope, D. & L.
Simpson Cement Mold Company, Columbus, O.
Snell Manufacturing Company, R. Z., South Bend, Ind.
Somers Bros., Urbana, Ill.

The organization is largely due to the efforts of Sid L. Wiltse, of the Cement Machinery Company.

Largest Concrete Pier.

The concrete piers of the Clover Bar bridge, on the Grand Trunk Pacific Railway, are said to be the largest all-concrete piers in Canada, and perhaps in the world. There are four of them, two of which are 140 feet high and the others 7 feet less in height. The bridge from abutment to abutment is 1,660 feet in length. The piers extend 40 feet below the surface of the water. The concrete work was undertaken in midwinter. This was one of the difficulties with which the constructing company had to contend. To work with concrete during cold weather it is necessary to use heat. Houses were constructed around the piers and these were heated with steam, which was conveyed by pipes from a plant on the river bank. After placing and packing the concrete in its molds, it was also necessary that it should be kept heated for at least a day, and then allowed to set gradually.

Good Concrete Block House.

BUFFALO, N. Y., Jan. 26.—The accompanying picture shows an attractive and substantial cement block house built and owned by W. J. Shepherd, of Port Erie, located on the Canadian side of Niagara River, opposite Buffalo. Mr. Shepherd hauled the gravel from a pit on his farm three miles away and made



CONCRETE BLOCK HOUSE OF W. J. SHEPHERD, FORT ERIE, ONT.

the blocks himself. He used the Miles machine. According to a description of the building, the structure contains 3,000 blocks. The veranda floor is cement. The inside walls are studded to make a space between the cement wall and the plastered wall, thus keeping the interior always dry. The interior is finished in hardwoods and finely decorated. It is said that several Buffalonians will use Mr. Shepherd's house as a model in preparing plans for homes to be erected in this city.

American Cement Tile Co.

PLAINFIELD, N. J., March 10.—The first big industry to be located in North Plainfield promises to be a concern that will employ from 200 to 250 skilled men when it starts operations. It is the American Cement Tile Company, a concern firmly established for several years in Pennsylvania. Already a large tract of ground convenient to the Jersey Central tracks has been purchased, but the exact site has not been made known by the company's directors.

Isadore Meyers, a Baltimore capitalist, is president of the company. The company manufactures a large fireproof tile by a secret process and it is said that the output of the Pennsylvania plant is in great demand.

At the present time the concern disposes of most of its cement tile to the Standard Oil Company, which has adapted the make exclusively for construction work on all its large buildings in the East. Considerable of the product is sold to the Federal government and is used on new army buildings now in the course of construction.

Plan Concrete School.

HANCOCK, MICH., March 10.—Plans for the proposed new schoolhouse to be built next summer on the Hancock Mining Company's property in West Hancock were submitted by Architect H. T. Liebert at a special meeting of the Hancock school board held recently. The plans provide for a combination of mission style and old English architecture and the material favored is cement bricks, which will be attractive in appearance and durable as well.

The small cost of manufacturing the bricks makes them desirable from an economical standpoint. The bricks were described in detail by C. A. Wright, who attended the cement show recently held in Chicago, and was much impressed by them as a desirable material. The floor plans shown by Mr. Liebert were approved with slight changes, and Mr. Liebert was instructed to complete them and present them at the next regular meeting of the board. The amount to be expended by the board will be about \$25,000 and will provide for an eight-room building two stories in height and with floors of reinforced concrete, making it thoroughly fireproof.

Concrete Courthouse.

LEWISTOWN, MONT., March 16.—Fergus County's courthouse has been finished and turned over by Contractor William Oliver to the county. The building rises 100 feet above the foundation. The architecture is of mission style and the building is constructed of reinforced concrete, faced with pressed brick and ornamented with terra cotta.

The entrance faces Main Street and opens into a handsome rotunda. Stepping into this beautiful room the visitor is impressed with the excellence of the finish. The wainscoting is imported Italian marble, while the floor is of artistic tiling. Near the entrance is an attractively designed hall lamp, with another inside.

In keeping with the character of the building as a whole is the roof. This is of concrete, the first one

of the kind ever built in this part of the state. The concrete is covered with Spanish metal tile. The furniture in the various offices is of metal.

To Extend Pier.

PORT RICHMOND, VA., March 15.—Plans have been prepared by the Reading Railway for extensive improvements to its iron ore pier, No. 14, which will involve an expenditure of \$500,000. An addition of forty-five feet in width on the south side of the pier and an extension to the established pier head line will be made, which will give the pier a length of 764 feet. The Reading's standard concrete wharf construction will be carried out in the work of extension.

The docks will be dredged to a depth sufficient to accommodate the largest type of vessel now entering the port and having in view the later requirements of heavy draught vessels when the 35-foot channel project shall have become a reality.

The concrete sides of the pier will give accommodations for runways of electrically-operated Gantry cranes.

Concrete Summer Resort.

CHICAGO, ILL., March 2.—Tentative plans for the building of a model reinforced concrete summer home town on the north shore, near Waukegan, in which every structure is to be absolutely fireproof, weather-proof and artistic, both in architectural detail and surroundings, are under discussion.

It will be a painless and insuranceless town. It will not be a municipality of standard every-house-like-its-neighbor monotony. There will be sufficient variety in the structures to give the city a Tuxedo Park or Newport appearance.

"There exists no valid reason why Chicago should not have the world's most famous concrete fashionable suburb," said one of the capitalists interested, in discussing the matter with President Edward M. Hager, of the Universal Portland Cement Company. "There are enough well-to-do people here who would rent cottages for the season down near the lake shore to make the concrete city a social center. Why not a Newport near Waukegan?"

Will Start Plant Soon.

HANNIBAL, MO., March 10.—The Burlington Railroad is preparing to open its concrete plant in the local yards about the middle of the present month. A force of men have been busily engaged getting the plant in shape. The plant manufactures concrete pipes, slabs and tiling which are used in the construction of the bridges over the system. It was installed last year.

Concrete in Quebec City.

CITY OF QUEBEC, CANADA, March 20.—The addition to the Chateau Frontenac, one of Canada's leading hostelrys, is nearing completion and is one of the noteworthy examples of reinforced concrete construction in the country. In it the architect has successfully carried out in harmony the style worked out by the designer of the original building. It is suggestive of a French chateau and its site makes it one of the picturesque spots of this city.

Owing to the fact that the site is not a level one it was found necessary to build the additions considerably higher than the original building, and the problem of grouping the new so that it would be strictly in accord with the old was an exceptionally difficult one.

To assure the uniformity of color and material between the original and the addition, it was decided to

use the same materials in the exterior, which were Terrabone stone, a native stone, and Scotch firebrick. The addition is 150' long and 55' wide and the topmost tower is 170' above grade. The main building is nine stories high, with four stories higher in the tower.

In the construction the Kahn system of reinforcement was used, the reinforcement of the beams consisting of Kahn trussed bars. With the exception of the attic floors, which, like the roof, are of solid concrete slab construction, the floor system in general is a combination of concrete and hollow tile.

In the carrying out of the concrete work, the materials were dumped into a hopper with gates controlled by a lever, the hopper being flush with the ground outside the building. This hopper fed into a Smith mixer of one-half yard capacity, which, after properly mixing the material, dumped the concrete into a bucket hoist, the bucket in turn being elevated to the floor under construction, where the concrete again was dumped into a hopper, from which it was fed into wheelbarrows, which deposited the concrete into its final place.

For the construction of the roof portion, however, it was found that handling the concrete by means of wheelbarrows was unsatisfactory and consequently the concrete was conveyed by means of chutes from the discharging hopper on to platforms immediately over the various points along the ridge. The columns and roof slabs were puddled with long poles, the steel being placed before any concreting was begun. Special care had to be taken in the columns and roof slab to prevent separation of the stone from the mortar in its long drop. The concrete in floor slab and beams was puddled merely by spading same, the reinforcement being placed in this case, as well as in the former, before the concreting was begun. The men placing the reinforcement material followed immediately after the carpenters had finished the form work, and only after all steel and form work had been carefully inspected by the superintendents in charge, was concrete permitted to be placed.

The late Bruce Price was the architect of the original building. W. S. Painter was the designing, as well as the supervising, architect for the addition. The Trussed Concrete Steel Company, of Toronto, were the structural engineers, and the Canadian Stewart Company were the contractors.

Mistake in Award.

BLUE RAPIDS, KAN., March 10.—Jesse Axtell & Co. say that the concrete house which received honorable mention in a recent contest conducted by a paper named *The Household*, and submitted by Mrs. George Hull, of Illinois, was one built by them, and says that it is rather odd that this should have happened. Mr. Axtell says he would like to get a combination cement and asbestos shingle to cover his next house. He wants to mold them as he does his blocks.

The *Wichita Eagle* of Sunday, February 21, contains a good story of the concrete work which has been done in that city. The subject is well handled and shows the interest being taken generally in concrete construction.

The Greenville Cement Tile Company, Greenville, Washington County, Miss., has been organized with a capital of \$30,000. J. H. Crouch, Natch Goldstein and others are interested.

The Egyptian Cement Products Company, of Cincinnati, has been organized by A. Golder and others.



THE CHATEAU FRONTENAC AT QUEBEC. THE ADDITION NEARING COMPLETION IS OF REINFORCED CONCRETE.

THE FIRST CANADIAN CEMENT SHOW

Development of Cement and Concrete in Canada Brought out at First Canadian Cement and Concrete Association Convention and Exhibition at Toronto.

The first annual meeting of the Canadian Cement and Concrete Association was held at Toronto, Ont., from March 1-6.

In connection with the convention the first exhibit of the industry was held under the auspices of the association, and it showed the wonderful development of cement and concrete in all its stages in the Dominion.

The exhibit was held at the St. Lawrence Arena, about two blocks from the King Edward Hotel, which was the headquarters of the association. The attendance was good, though consisting largely of people from other cities.

The city of Toronto officials failed utterly to take any interest in the show, and that an exhibition of this kind, which was, in a large measure, to their interests and worthy of their support, should be ignored, is a deplorable thing. Considering all this to contend with, the men at the head of the association willingly put their shoulders to the wheel and pushed it through to a successful finish.

The association, although less than a year old, is officered by men who not only have faith in the enterprise, but are strong and enthusiastic workers, as well. Already the membership has passed the hundred mark, and now that the success of the associated effort is assured, it will no doubt increase by leaps and bounds. The various steps to be taken for the promotion and publicity of association matters were enthusiastically taken up.

A gratifying feature of the meetings was the interest manifested by the large attendance at each session—three each day. Invitations were extended to engineers and architects, as well as all associations interested in concrete construction, and each session found some new member or representative present and taking an active interest in the proceedings.

The program was interesting in every detail, and contained lectures and carefully prepared papers by men best fitted to handle the subjects assigned them, which covered every phase of the cement and concrete industry, from the manufacture of the product until the finished work.

The formal opening of the show took place on Monday night at 8 o'clock, at the St. Lawrence Arena. President Peter Gillespie, of the association, made the introductory address. He said:

I have much pleasure in opening the First Convention of the Canadian Cement and Concrete Association, which was organized about a year ago. Its aims and purposes are to extend a knowledge of cement and concrete and reinforced concrete, and to direct the attention of possible users to the application of these materials in construction. Also to provide opportunities for meetings from time to time at which scientific and practical subjects bearing on the application of these materials in construction will be discussed. Also to provide for the publication from time to time of literature as it may seem advisable. We have two or three precedents for our organization—the great Institute of Great Britain, embracing in its constitution 500 architects and engineers, the most eminent in the British Islands. That organization's president was the Right Honorable the Earl of Plymouth, the late Minister of Work in the Imperial government service. One of the vice-presidents is Sir Douglas Fox, one of the past presidents of the Society of British Engineers, the most influential organization of its kind in the British Empire. This organization hopes to popularize the uses of cement and concrete, and other products in the line of this material, and it is thought that to hold an exhibition and convention from time to time will accomplish this end. You will find on the floor of this hall this evening a large number of very fine exhibits, over sixty in number, comprising cement products, machinery, and various appliances necessary in their manufacture; and, I think, it is a compliment to the enterprise and ingenuity of the manufacturers in the United States as well as Canada, because many of the exhibitors here are from across the line, and they have shown sufficient interest in this convention to come and display their exhibits. We have with us this evening Hon. Dr. Reaume, the Minister of Public Works, for the Province of Ontario, representing what, I think, is the most important part of the provincial service, and I am glad to know that he takes a more than superficial interest in that material which is attracting so much attention in the industrial work. I have much pleasure in calling upon him to open the exhibition.

Hon. Dr. Reaume: Mr. President, ladies and gentlemen, I assure you that it is a pleasure for me to be here tonight. I thank the Committee of Arrangements for having invited me to take part in the opening ceremonies of your exhibition. I am glad to see so many throughout the length and breadth of this province taking a deep interest in this industry as exhibited this evening. Within the last few years the Ontario government had devoted a great deal of time, attention, observation and study to this cement and concrete work. Within the last few years we have recommended the use of cement to the municipal councils and to the farmers, with the result that all the bridges of any importance throughout this province are today built with cement abutments with structural steel and even cement floor. We have ourselves led in the example, as all our bridges of any importance are built

with concrete and steel. The Mattawa bridge, costing us some \$21,000, is one of those, and only this last year we have built bridges over the Spanish River alone which cost us in the neighborhood of \$70,000. We are now preparing estimates for the construction of a large number of bridges, because we observe that throughout this province, particularly in its northern part, where some ten or fifteen years ago the Ontario government undertook to build bridges spanning important streams, where settlers could not very well undertake the work, those bridges were made of wood. What has been the result? Those that are left are now in a decaying condition, falling down; a large number of them have been swept away by floods and spring freshets; whilst a large number have been burned because of forest fires. We have been taught by experience that although it may cost a little more for the time being, we are determined that we shall give to the people of this province some good, solid and permanent work. I am glad to see that the country at large is adopting the use of cement not only for bridges but for their barns, foundations, concrete floors and pavements. In the town where I live we now have cement blocks. They are durable, practical and very serviceable, and the people are well satisfied. We are now seeing silos built in that way, and even the building of four or five large dams over streams and for private waterpowers. At this present time I am figuring on cement as being in the end the cheapest, most permanent and surest of all materials that can possibly be used. You gentlemen who are interested in this industry must unite and work hand in hand for the welfare of your industry. Be careful that you employ good mixers and good upright, honest men. A great deal of the discredit and the fault of the finish



PETER GILLESPIE, PRESIDENT, TORONTO, ONT.

of cement work in sidewalks and pavements is generally due to bad mixing and dishonest work, bringing disrepute upon the trade and the industry of this country. However, I must say that sometimes some of the cement men are not altogether blameless. It is our duty, in connection with our department, to visit different towns and examine the cement work, and I have seen where it was not always due to the mixing, but to cement that was not always clean. However, I will say this much, that on the whole in this province, whatever has been supplied to the department for those municipal bridges that have come to our notice, the cement in this province has been of a good quality. But you are here not only for self-admiration, you are here for self-protection. You are here to encourage the trade or the industry that you are engaged in. Let me suggest that you do not allow yourselves to be outdone by our American friends. I am glad to see so many of them. We like them. We like to meet them and discuss things; but after all, Canada for the Canadians, and we want to get our good share of the trade. We are very friendly with the Americans, and we like to do business with them, we like to mix with them. There is one thing that came to my mind, and I would like you to go and stir up the energy and the vim and the best qualities of our Canadian cement men. I noticed within the last two years a tremendous work being carried on between the United States and Canada, through the construction of a big tunnel under the Detroit River. We know that up to the water's edge cement ought to be imported free, but beyond that Canada imported over 100,000 barrels of cement from the United States. What were you doing? That was imported here while your cement mills were idle. Your men were perhaps sometimes walking the street. You wanted to have that trade. What was said? They said, "We can't get good clean Canadian cement, and we must import it." Then, if you have, some of you, such a reputation, I hope that you will always be ready to produce

an article on the market of such quality that when it is tested no such remarks can be made about the Canadian cement. Not only are we building our bridges and our cement works and sidewalks, etc., but we are largely introducing the cement in our public buildings. I could take you to Brockville and show you what has been accomplished with cement—a monument to the credit of our Provincial Secretary—of course through the advice of the Public Works department. I hope that you will have a very successful convention, that you will discuss the question of using cement and machinery to your greatest advantage. It is the coming building material. We are taking it up in building in almost every possible way, and it is for you to unite and foster your industry and you will certainly reap benefit yourselves. I have much pleasure in declaring this exhibition open to the gaze and the admiration of the public of Toronto and vicinity.

ATTENDANCE.

Peter Gillespie, Toronto.
C. F. Pulfer, London.
A. E. Uren, Toronto.
Kennedy Stinson, Montreal.
G. Kahn, Toronto.
T. L. Dates, Owen Sound.
C. H. Thompson, Toronto.
J. Augustine Smith, South Bend, Ind.
F. N. Rutherford, St. Catharines.
J. G. Murphy, Toronto.
J. M. Wilson, Owen Sound.
John Banks, E. Martys & Co., London.
Samuel White, Caledon, East.
Joseph O. Procter, Caledon, East.
J. Ign. Bilodeau, Quebec.
John E. Moore, R. W. Hunt & Co., Chicago.
B. H. Rader, Universal Portland Cement Company, Pittsburg.
W. M. Kinney, Universal Portland Cement Company, Pittsburg.
R. Marshall, "Concrete," Detroit, Mich.
J. A. McKay, Woodstock.
W. G. Somerville, Welland.
George Patton, Welland.
Andrew Garbel, Welland.
H. D. Somerville, Welland.
John Anderson, Hamilton.
O. M. Hodson, Bolton.
C. R. Osland, R. W. Hunt & Co., Montreal.
W. E. Ransome, Toronto.
R. Lyness, Delhi.
W. S. Bowden, Oshawa.
S. H. Baird, G. E. Lavelle, United States Gypsum Company, Chicago.
Ivan Macdonald, Toronto.
Bernard L. McNulty, Rock Products, Chicago.
John J. Cone, Robert W. Hunt & Co. New York.
K. D. Clark, Harbison-Walker Company, Buffalo, N. Y.
J. A. Watson, Laskay, Ont.
E. B. Chadsay, Toronto.
B. H. McEwen, Buffalo, N. Y.
F. W. Rogers, Fullerton, Ont.
A. Stewart, Port Arthur, Ont.
Phillip L. Abbe, Port Hosen.
J. P. Griffin, Buffalo.
Martin Vanderburgh, Welland.
A. W. Allyn, Montreal.
H. H. Dickinson, Hamilton.
P. J. Pellinger, Toronto.
Sanford E. Thompson.
A. D. Level, New York.
A. W. Thorn, Thorn Cement Company, Toronto.
J. D. Johnson, Thorn Cement Company, Toronto.
Merrill Watson, New York.
A. D. Blanchard, Toronto.
W. G. Swan, Toronto.
W. A. Mackillop, Toronto.
J. H. Hogg, Toronto.
R. M. Jaffray, Toronto.
R. L. Humphrey, Philadelphia, Pa.
C. R. Lavelle, Durham.
R. H. McWilliams, Durham.
D. E. Brown, Sudburg.
H. Mitchell, Mono Road.
J. J. McCough, Mono Road.
R. L. Lachon, Hamilton, Ont.
M. L. Low, Halifax, N. S.
George B. Lons, Halifax, N. S.
T. C. Irving, Jr., Toronto.
F. A. Norris, Boston, Mass.
N. J. Francis, Montreal.
M. Morssen, Montreal.
H. M. Carsellien, Toronto.
D. W. McCargan, Belleville, Ont.
K. D. Church, Montreal.
J. F. Beaur, Black Creek, Ont.
C. J. Millar, New York.
H. Drury, Jordan.
J. Champion, Jordan.
L. J. Street, Toronto.
H. N. Bedell, Picton.
E. Brown, Montreal.
C. W. Cadwell, Windsor.
W. A. Richmond, Windsor.
Emile G. Perrot, Philadelphia, Pa.
E. F. Stevens, Halifax.
W. G. Anderson, Kemptville, Ont.
Sackville Hill, Hamilton, Ont.
Wm. W. Findlay, Hamilton, Ont.
W. H. Gates, Jr., Hamilton, Ont.
A. L. E. Hamer, Cochrane, Ont.
D. C. Raymond, Toronto, Ont.
E. Lorne Stinson, Kenora, Ont.
J. Hilliard Rorke, Toronto.
R. Hanna, Mono Road.
G. W. Essery and W. H. Essery, Toronto.
A. W. Kirschman, Toronto.
J. O. Coates, Orillio.
J. T. Crafts, Toronto.
H. Wm. Housley, Morrisburg, Ont.
W. H. Cooper, Hamilton.

Lucius E. Allen, Belleville.
Thos. Lewis, Hamilton.
Dominion Concrete Co., Kemptonville, Ont.
Jas. G. Hedges, Nanticoke.
K. McKinzie Wright, Soo, Ont.
W. H. C. Mussen, Montreal.
Leonard Hill, Hill & Clark, New Liskaro.
Henry Pocock, London.
A. E. Hadgert, Exeter.
John Reeb, Port Colborne, Ont.
C. C. Badgley, Toronto.
J. Allen Ritchie, Quebec.
R. F. Ritchie, Quebec.
Chas. Warnock, Montreal.
A. J. Cromar, Brantford.
A. G. Larson, Owen Sound.
Chas. R. Halmes, Fred Halmes & Sons, Toronto.
M. Ferguson, Stratford.
E. A. James, Toronto.
E. M. Marcourt, Fairmount Coal Co., Fairmount, W. Va.
J. J. Salmond, Toronto.
Jos. Hickson, Mt. Gilead, Ohio.
C. A. Lingham, Canadian Portland Cement Co., Toronto.

AFTERNOON SESSION, MARCH 2.

The afternoon session was called to order at 2:30 o'clock by President Gillespie in the banquet room of the King Edward Hotel. He called upon Dr. John Galbraith, Dean Faculty of Applied Science and Engineering, University of Toronto, for the opening address. Dean Galbraith said in part:

I came here largely to show, as representing the University, that we are in sympathy with the work in which you are interested, and we are very proud that one of our staff, Mr. Gillespie, this year has the honor of being your president. It only requires a visit to the St. Lawrence arena to see what progress is being made along the lines of cement and concrete. I don't suppose that fifteen years ago, or certainly not in Canada ten years ago, any exhibition such as we now have could be seen.

I presume the cement plants, both in the United States and Canada, have capacity to turn out from one-quarter to one-third more of the product than they have been turning out, owing to demand, so that we may not look for a very great increase in the number of new cement plants for awhile. But the demand is going to grow. We may rather look and hope for investigation; for invention; for methods of making better use of what we have already.

It seems to me that the times of depression are times of lying in the ground seeding, so to speak and it is from those times must come the invention and improvements of the future.

I remember being interested in concrete. I was a contractor's engineer once on the Intercolonial Railway in the early '70s, and I remember then that we were about to get dimensions for the Millstream bridge on the Matapedia River. It was a question with the contractor whether he should make the piers and abutments of the bridge of "artificial stone," as we called it then, instead of natural stone. He set me to work and I manufactured a concrete block of Portland cement about the size of the ordinary dimension stone in the abutments of the bridge, and taking all the care possible with it, put it into the form and put it out into the river in the fall and let it remain there until the spring, to find how it would stand the action of the ice and the water. I suppose my concrete making was not very good. However, then we had not Portland cement such as we have today. It was an imported cement which we obtained from England. That block in the spring was cracked and worn to such an extent that we did not think artificial stone was the proper material for the building of bridge piers and abutments.

On another occasion I spent a few months in Boston while the oft-taken sewers were being constructed. Elliott C. Clark was the chief engineer of that work and I spent a good deal of time trying to learn a little about Portland cement there. That was in 1883. What makes me remember that so distinctly, is, that it was the first time that I had heard the theory that Portland cement owes its strength, or the amount to which it can take up sand, to its fineness. They had been importing Portland cement at that time to a great extent, and had also used some American cement. I believe that fact is still considered to be fundamental in the manufacture of cement, namely, that it owes its strength to its fineness.

To my mind, the two structural materials that are of the greatest importance to the engineer, the manufacturer and builder of the present day, are steel and cement. With these two we can do what we never did before—we can gradually economize wood. You know what has been said lately of forest conservation—that the value of our country will depend very largely on the conservation of our forests; on the holding up and steadying of the water near the head of the streams instead of allowing the water to overflow and denude the surface. Now, forest conservation is possibly at the root of a great deal of our future prosperity, and there is no doubt that the cement industries will have a very great effect in helping forest conservation. I am pleased to be with you, and assure you that we in the University are not behind the public in feeling the advance of the cement and concrete industry.

Following these remarks, President Gillespie made his annual address, which contained suggestions as to the future of the association.

PRESIDENT'S ADDRESS IN PART.

It is doubtful, indeed, if any industry of magnitude on this continent can show a record of growth and expansion comparable at all with that exhibited by the manufacture and use of Portland cement. It began in 1875, when D. O. Saylor, the father of the industry in the United States, erected his first plant in the Lehigh Valley. How rapidly this industry has grown is almost without precedent.

In consequence of this marvelous growth, a situation inevitable, though unfortunate, has been created. The advocates of cement construction through misguided enthusiasm, inexperience or commercial knavery, have made declarations concerning the cheapness, strength and excellence of their product, which never have been and doubtless never will be true. The American people have come to recognize the merits of the new material long before they were truly appreciative of

its limitations. Its easy manipulation, its relative cheapness, its immunity from decaying influences and its fireproof qualities were recognized before its behavior under stress and its elastic properties were known sufficiently to permit of intelligent and economic construction. The inexperienced designer, without data, without precedent and without standard, has made mistakes, some of which, he it regretted, have proved fatal. Incompetent supervision and careless inspection have been unfortunately too common. Peradventure, most of the failures in concrete and reinforced concrete structures, during the past decade, are traceable to some or all of these various causes, and, as may be expected, the public at large has attributed the failure to the material rather than to the method of its manipulation.

Investigations and Experiments.

Fortunately, of late years, much investigation and experiment, both inside and outside of the laboratory, have been carried on. As a result, our knowledge concerning the properties of concrete has become more exact, our methods of manipulation have been improved and our practice in design has approached something like standardization. Such organizations as The American Society for Testing Materials, The American Railway Engineering and Maintenance of Way Association, The American Society of Civil Engineers, The Canadian Society of Civil Engineers, The National Association of Cement Users, and others have had committees working on the various problems in the manufacture and use of Portland cement. Much valuable information has been collected, and much important work has been done. The publications of these bodies are generally regarded as authoritative, and represent the focussed opinion and experience of the best men available. That their work is not yet concluded, is evidenced by the fact that recommendations looking toward changes, sometimes, indeed, quite radical, are frequent. As experience and investigation reveal additional information, the necessity for such changes become imperative. Manifestly then,



GUSTAVE KAHN, VICE-PRESIDENT, TORONTO, ONT.

the control of the methods of employing this material is largely in the hands of such organizations, and if the industry is to be saved from discredit through ignorance, incompetency or dishonesty, it must be through their good offices.

How can the Canadian Cement and Concrete Association assist in this work? I think, in several ways, viz.:

First, by becoming an outlet for valuable contributions on the manufacture, testing and use of Portland cement.

Second, by adopting as an organization, either in toto or with modifications, specifications which other reliable organizations have evolved, or by creating others which seem better suited to the conditions under which they will have to operate.

Third, by similarly assisting in the standardization of methods of testing cement and cement products.

Fourth, by becoming a "clearing house" for the ideas and experiences of manufacturers, users, engineers, architects and chemists. In the last analysis, what is best for an industry as a whole, will be best for the individuals who are identified with it in any capacity.

There are many problems before the cement man today which must be honestly met, and the ultimate status of this organization will depend pretty much on its integrity and independence in facing them. To publish authentic information is one of its prime functions, and it will be judged solely on whether it properly discharges that function. The usefulness of concrete in sewer construction has recently been a live topic in Toronto and other places, and there are no doubt many persons who are honestly seeking information on this very important subject. The fire-resisting qualities of concrete and its efficacy in this regard relative to that of clay products, has been much debated of late. The effect of steel on the elastic properties of concrete adjacent to it, the ability of such imbedded metal to resist corrosion, the failure of cement sidewalks, the care of expansion and contraction in large masses of concrete, the effect on concrete of chemical re-agents and products of organic decay and putrefaction, are some of the things concerning which many sincere but inexperienced people, and perhaps too, some experienced users of cement are not absolutely clear.

Necessity For Specifications.

A specification that is too severe defeats its own object; one that is not severe enough, is a menace to

both parties to the contract. Most of our Canadian cities have incorporated into their building codes, rules for the regulation of concrete construction. These rules are generally conservative, sometimes unduly discriminating as to the use of concrete and reinforced concrete, and err in that they are not sufficiently elastic and fail to recognize that different requirements should be demanded for different kinds of construction. This association should throw the weight of its influence toward the procuring of specifications that avoid these objectionable features and that will properly safeguard the public by insuring for them reliable and workmanlike products. Such specifications, representing in compact form, what a large number of intelligent, honest, and experienced men have found to produce the best results, will do much to win the confidence of the architect, the builder and the residence owner, and will prove in the long run a protection to both producer and consumer.

To obtain, prior to acceptance, information concerning the fitness of any material or method to perform the work expected of it, is the purpose of a test. Concerning this purpose and the efficacy of a test to serve that purpose, Dr. Charles Dudley has this to say:

In view of present knowledge and present means and appliances for testing, are engineers or their principals any longer entitled to offer as an excuse for defective materials, that they were bought from the best makers? Can they equitably do so? Can they legally do so? Is not the time near at hand when engineers and their principals will be compelled, if not legally, then by force of public opinion, to acquire, by the establishment of laboratories and means of testing, by the making and enforcement of specifications, such knowledge in regard to the materials they are putting into structures, as will give the public greater security than it now has against disaster?

Granted then, the wisdom of the practice of testing, what about the method employed? One of the chief difficulties in making comparisons between results obtained in different places at different times and by different operators, is that the methods of conducting tests are often widely different. The drafting of specifications designed to obviate that difficulty has been one of the commendable acts of the technical societies, and I feel that to this worthy object, our association should contribute something.

In the fourth place, this association exists for the purpose of interchanging experiences among its members. Here is the opportunity for those whose experiences have been similar, to rub shoulders,—to compare notes. It is in such ways that progress will be made, that the repetition of failures will be prevented, that the successful method will be perpetuated and the organization made an educational factor. The meetings belong to the members—and the public—and it is hoped that they will take advantage of every opportunity afforded to give and receive useful information.

Testing Laboratory Essential.

As many of you are aware, the Canadian Society of Civil Engineers at its recent meeting in January, discussed at considerable length the question of government research laboratories along lines similar to those conducted by the United States Geological Survey at St. Louis, Mo. These laboratories, which are the outgrowth of the model testing laboratory of the Association of American Portland Cement Manufacturers at the St. Louis Exposition, 1904, are now maintained by the federal government at an annual cost of \$100,000 for "the investigation of structural materials, belonging to or for the United States, such as stones, clay, cement, and so forth."

It is to be regretted that in Canada, no provision for such investigations on anything but a small scale, at present exists. How important to the industries of Canada would be the creation of such a laboratory? It would not exist for the purpose of commercial testing, but rather as an institution where, under capable and unbiased direction, the facts concerning the materials of construction could be investigated according to a comprehensive plan not now possible. If a beginning were made, I feel confident that its usefulness would soon justify its creation. It has been estimated that the tests reported to date from the St. Louis Structural Materials Laboratories indicate the possibility of reducing the amount of material used in public buildings and structures made wholly or in part of reinforced concrete, so that the cost will be lowered 10 per cent.

The efficient conduct of a technical society necessitates the appointment of a permanent secretary. This is essential in order that there be continuity of method. Since he must act frequently without the advice of the council, he must be a man of some administrative capacity. Further, the status and influence of the association, its numerical strength and its resources are pretty much measured by his energy. He must oversee details, take the initiative, and, in brief, perform all the functions of a general manager. In order to do this, he must be a person who is prepared to devote a large portion of his time to the work of the society, and for this, it is only reasonable that he be paid. It will be very much to the interest of the association if its financial condition will permit the appointment of such an official.

Finally, let it not be forgotten that the Canadian Cement and Concrete Association is a national organization. Its membership must include representatives from both parties to the transaction—the buyer and the seller; the maker and the user. On its committees should be found the manufacturer and the builder, the engineer and the architect, the investigator and the scientific writer. That the best interests of this wide constituency may be properly conserved, it is imperative that no one section shall dominate the work of the organization. Only by resting on this broad democratic basis, and by recognizing that in a multitude of counsels there is safety, can the association do its part in furthering the interests of all who are concerned in the building up of what is destined to be one of the great national industries of Canada.

William M. Kinney, assistant inspecting engineer of the Universal Portland Cement Company, Pittsburg, then gave a paper on "Why Sidewalks Fail." Mr. Kinney's remarks were illustrated by stereopticon views.

WHY SIDEWALKS FAIL.

By W. M. KINNEY.

For several years the Universal Portland Cement Company (with which company I am connected) has been engaged in the study of the causes of failure of Portland cement sidewalks. While the number of such failures is small, when compared with the total number of walks laid, these failures are attributable to so many different causes which are easily prevented, that we have deemed the subject worthy of careful and systematic study to the end that such failures may be avoided.

In the fall of 1907, some 7,000' of experimental sidewalk was laid near our mills at Buffington, Ind. Every 27 square feet of this walk was laid in such a manner that it differs in some detail of material, proportions, or method of manipulation, from all other sections of the walk.

Records of these variations having been kept, it will be possible as time and the elements affect the poorly constructed walk, to gain a fair idea of the cause of failure.

However, as all conditions encountered in actual practice could not be worked out in this way without a large outlay of money, it was decided to employ six men to watch and make note of the methods used by some twenty-five contractors in and about the city of Chicago. In this work we had the co-operation of the contractors and city officials, so that our investigations were not hindered in any way.

One hundred and sixty jobs were examined, amounting to a little over four miles of six-foot walk in which fifteen brands of cement were used. Careful field notes were made on each stretch of walk from the placing of the sub-base to the removal of outfit to the next job. Every condition which could be thought of as likely to have any effect on the walk was noted.

In this way a complete history was obtained for every slab, so that any future deterioration might be attributed to some irregularity in its construction. Attention was given to the methods used in mixing the materials, the proportions and size of batches, the consistency obtained, and the time elapsing between the addition of water and laying the concrete. The condition of the foundation, sub-base and base, when they were covered; the area covered by each batch; the time of placing troweling and finishing of each slab; and the general weather conditions were also recorded.

As you well know, poor materials and poor workmanship cause practically all sidewalk failures. Of these two, it can be safely said, workmanship is by far the most open to criticism. Poor materials, properly handled, may often give very satisfactory results, but careless manipulation of even the best materials usually leads to poor results.

When referring to poor materials used for sidewalk construction I mean the aggregate mixed with the cement. We can safely assume, I believe, that when purchased from reliable manufacturers the chances of obtaining a poor quality of cement are small, and particularly when compared with the many classes and conditions of fine and coarse aggregate encountered.

There is one precaution that should be mentioned in regard to cement. Avoid, whenever possible, the use of cement which has been stored so long in a damp warehouse that it has become lumpy. This is particularly advisable when the lumps do not break up easily during the process of mixing. Generally speaking, aging improves cement, and when kept dry no harm should result from its storage. Very often the lower sacks in a high pile will be hard, but this hardening is due rather to weight than to dampness, and the cement flows freely from the sacks.

The great disadvantage in the use of lumpy cement is its failure to mix readily and its tendency to retard the hardening of the concrete. If the lumps are all broken up and the cement thoroughly intermixed with the aggregate, no apparent harm will result though the hardening process will usually be retarded.

Returning to the question of aggregates, I believe I can state without danger of contradiction that all concrete failures due to the use of poor material can be ultimately traced to the presence in the aggregate of a large quantity of very fine material, either in the form of loam, clay or pulverized stone of some kind. This fine material occurs in two forms, either as dust in the aggregate or as a thin coating on the particles of the aggregate. Preventing as it does the covering of the aggregate particles with cement, this coating of fine material is exceptionally injurious to the concrete. Very often because of this condition the mortar has no bond on the larger aggregate and the individual stones may be readily removed.

The effect of fine material is most noticeable in the wearing course of a sidewalk or basement floor. The tendency of some walks to wear down in spots, and of basement floors to dust up rapidly, is undoubtedly due in the main to this cause.

Turning now to the question of workmanship, we find one of the principal causes of failure is due to the improper construction of the foundation on which the sidewalk is laid. In this connection it is well to bear in mind that the chief usefulness of concrete comes from its compressive, rather than its tensile strength, and as any weakening of the support under the walk puts the concrete in tension, the necessity for a solid foundation is quite apparent.

The proportioning and mixing of concrete usually receives a good deal of attention, so that poor work seldom results from this cause alone. Occurring in combination with some other improper handling it may lead to unsatisfactory results. A common form of poor construction under this heading is the case where a poor base course results from the use of an unscreened gravel which contains too large a quantity of sand as compared with the larger aggregate. Generally speaking, any sand in excess of that required in conjunction with the cement to fill the voids in the larger aggregate has a tendency to materially weaken the resulting mixture. Often, by the elimination of a portion of the sand, better results can be obtained with less cement.

Unless the cement thoroughly covers all particles of the aggregate, poor concrete is found to result, and it is therefore unnecessary to emphasize the need of thorough mixing.

Coming now to the placing of the concrete, the cause which leads to the greatest number of failures is tardy application of the wearing surface. Being but a thin coat of a sand cement mixture, its bond with the base course must be of such a character that it can withstand the action of frost and other strains. It is essential, therefore, to apply the wearing course as soon after placing the base as possible.

Another type of failure similar to, but not so common as the above, is caused by the combination of a weak base with a good top course. Oftentimes cracks are

visible only in wet weather, but the action of frost soon opens them up and spoils the work.

A joint should be provided where new walks about old walks or curbing.

As a general rule unless the stretches of walk are very short these joints should be expansion joints of some sort. The fact that concrete has an expansion coefficient nearly equal to that of steel is often lost sight of by the average sidewalk contractors. The result of this expansion may cause buckling of the walk.

A form of failure encountered more often in the smaller cities, is that due to the building of a walk around trees. Invariably the growth of the tree will crack the walk unless allowance is made for this growth, hence the advisability of providing for the growth.

A form of poor construction most generally found in small communities which can hardly be called a failure, but at the same time renders the work unsightly, is that work in which an uneven grade is maintained. This is, of course, an error that can be laid to the city engineer in that he does not provide or insist on a uniform grade.

We trust that our efforts will lead to the elimination of all such unsightly and useless work.

Following this Mr. Kinney was asked a number of questions on foundations, mixture of the aggregate and the use of slag in the aggregate. The discussions following were of considerable interest, and consumed the remainder of the afternoon.

EVENING SESSION, MARCH 4.

The meeting was called to order by President Gillespie at 8:30 p. m. The president then called upon John E. Moore, chief chemist of Robert W. Hunt & Co., for an address on "Tests and Inspection of Cement."

Mr. Moore told of the work they were doing and impressed his hearers with the thoroughness of tests



KENNEDY STINSON, OF MONTREAL, COUNCILLOR.

made on cement before they were passed and allowed to enter construction work.

The next address was by Frank Barber, engineer of the County of York, on "Concrete Bridges." He said that in York County sixteen years ago all bridges were of wood, though some were iron trussed. Now there are only about one hundred of this type, and in ten years not one will be left. Bridge construction has changed considerably in the past few years. The largest concrete arched bridge in Canada was erected last year at Massey, Ont. It has a ninety-four-foot span. Stone will disintegrate, but concrete grows better with age. Concrete bridges need no replacement, but will last as long as the hills. Another advantage in a concrete bridge is the fact that there are no vibrations and it cannot fail suddenly. Mr. Barber was asked a number of questions at the close of his address.

J. Augustine Smith, South Bend, Ind., then read a paper on "Concrete Blocks," which was along the same lines as the paper he read before the National Association of Cement Users at Cleveland. Mr. Smith covered every phase of the concrete block business with suggestions as to its best uses.

H. B. Gordon, of Toronto, was called upon for a few remarks in behalf of the Ontario Association of Architects. He thought that concrete is a material that is here to stay, though the adaptation of designs in stone does not lend itself readily to this material, so that it is up to the architect to create new ideas for concrete.

The session adjourned at a late hour.

MORNING SESSION, MARCH 3.

The meeting was called to order by President Gillespie in the parlor of the hotel. It was an executive session, and was given over to the discussion of

the good of the association. Lines of promotion and publicity were discussed, which resulted in a motion that the executive committee take steps to organize local branches of the association in the larger cities of the dominion. The following cities especially were mentioned: Windsor, London, Hamilton, Halifax, Montreal, Quebec, St. Johns, Winnipeg, Vancouver and Calgary. The motion was passed, and the entire membership heartily endorsed the movement to extend the work of the association.

The election of officers for the ensuing year followed and resulted in the following being unanimously chosen:

PRESIDENT, Peter Gillespie, Toronto, Ont.

VICE-PRESIDENT, Gustave Kahn, Toronto, Ont.

COUNCILORS, C. A. Lingham, Toronto, Ont.; T. L. Dates, Owen Sound, Ont.; C. Cannif, Toronto, Ont.; Kennedy Stinson, Montreal, Que.; J. G. Murphy, Toronto, Ont.; D. Raymond, Toronto, Ont.; C. H. Thompson, Toronto, Ont.

The selection of the secretary was left to the executive body.

Moved by Mr. Kahn that the executive committee be increased to include the chairman of each branch, and that he be also a member of the council. The council to have power to add to its number whenever the occasion warranted. Motion was carried.

A vote of thanks was given to Secretary A. E. Wren for his work during the year.

Discussion on a permanent secretary followed, and the executive body was instructed to proceed toward the employment of a man to act in that capacity, and, if feasible, to have a man who could act as manager for the show.

It was also decided to establish a committee on publicity, which should be added to the official lists.

The executive session then adjourned until Friday morning.

AFTERNOON SESSION, MARCH 3.

The meeting convened at 2:30 o'clock, and A. G. Larrison, chemist of the Grey & Bruce Portland Cement Company, of Owen Sound, Ont., read an excellent paper on "Portland Cement Mortars," which was followed by a paper on "Designing and Testing of Reinforced Concrete Beams," by E. Brown, Associate Professor of Applied Mechanics, McGill University, Montreal, Que.

Professor Brown gave a very comprehensive paper and discussion on practical designing, which was interesting to every one present.

The president called on James Pierson, who responded for the Toronto Concrete Paving Association. Mr. Pierson said: "We are very much pleased to have the concrete workers with us. We are glad to hear the explanations and papers on the subject of cement and concrete. From a practical standpoint, we believe in the utility of Portland cement. Board walks and cedar blocks decay. A permanent pavement is one in which cement enters. Sidewalks now are entirely of concrete. All street pavements have some concrete either in foundations or some other part. The use of cement in road building is increasing. Asphalt is used with concrete foundations."

C. W. Caldwell, manager of the Caldwell Silix Stone Company, of Windsor, Ont., read a paper on "Twenty Years' Experience in Cement Walk Building." Mr. Caldwell told of the development of sidewalk construction and the increasing demand for concrete in that line.

Lucius E. Allen, of the Ontario Limestone & Clay Company, Belleville, Ont., then read a very interesting paper on "Modern Methods of Waterproofing Concrete."

MODERN METHODS OF WATERPROOFING CONCRETE

By LUCIUS E. ALLEN, C. E.

While the present methods of waterproofing have been developed within the past few years, it is of interest to know that to the Romans must be given the credit of first successfully manufacturing cement as well as initiating the first methods of waterproofing. Of the early history of waterproofing there is little known, as the literature on the subject is very meager and, therefore, it must be taken on faith and later information. It resembles the question asked of a small schoolboy: "Which is the largest city in Canada?" "Toronto," replied the boy. "Who told you so?" asked the teacher, and the boy promptly replied, "A gentleman from Toronto."

When the Romans invaded Gaul nearly 2,000 years ago, they discovered the mineral cerusite, from which they obtained lead. They soon found that if the lead was rolled into thin sheets and exposed to air and water it soon became coated with a white coating, or white lead, which retarded further corrosion, and in many of the foundations of ancient Roman structures these thin lead sheets are today found. But this method of waterproofing was too expensive to ever become practicable and other methods were adopted.

One of the important questions which confronts many concrete workers is that of rendering concrete water and damp-proof, and it is this question I desire to briefly discuss. Bearing in mind that it is a condition and not a theory to be evolved, I propose to consider first, the composition or makeup of concrete itself, in order to gain a better understanding of the character of the material to be waterproofed. Concrete is a term which covers many forms of building construction, but may be defined as a solid mass which may be composed of an

aggregate of sand, gravel, crushed stone and Portland cement, mixed in a wet or semi-wet condition and placed in forms or moulded into blocks, brick or other monolithic forms. As there are so many varieties of aggregate used in various localities, it is difficult to specify or to define the exact relations in which these elements exist in the finished concrete, and while, with certain materials, the concrete will be porous, water easily permeating through it, with other materials the concrete will be more dense and more nearly waterproof. There is also the question of the proper proportioning and mixing of the materials, which, in many cases, is the cause of poor concrete, and should not be taken as evidence against the use of concrete itself.

Sand: It is important to use a sand of uniform character, neither too fine nor too coarse, and while it has always been said that sand which contained any appreciable amount of loam or clay was exceedingly detrimental to good concrete, many good authorities now claim that a certain amount of clay, if properly mixed with the sand, is not injurious, and in fact will make a more impermeable concrete than with clean sand.

Crushed stone: As the aggregate may be made up of fine or coarse crushed stone or gravel, the proportions of sand to the aggregate should be properly made, always bearing in mind to obtain as low a percentage of voids as possible. It is also important that the crushed stone be clean and that the amount of dust be as small as possible. As an instance of the injurious effect of any considerable amount of limestone dust in crushed stone, the speaker has had occasion to inspect an important job where the contractors were making complaint that there was a fine white dust in the cement which rose to the surface of the concrete after work was stopped at the close of each day. In this particular job the concrete was mixed very wet, and there being such large proportion of limestone dust of lower specific gravity than the cement, the limestone dust rose to the surface and left a seam which it was necessary to remove in order to secure a good bond.

Cement: It is very important also to use a well-seasoned and high-grade Portland cement in all work where it is desired to obtain a damp-proof wall. It is especially desirable that the Portland cement be as finely ground as possible, as the finer the cement is ground, the more dense the concrete will be, and will also carry more sand than the coarser ground cement.

Classification of Processes: It can be no longer denied that concrete may be rendered waterproof, and that structures built of that material may be made dry, and as comfortable to live in as if made from brick, wood or stone. In discussing the various methods now in use, I propose to follow the classification usually made, as the classification adopted logically determines the treatment to be followed. The classification may be based, first, on the method or mode of construction; second, the nature or kind of structure, and, third, the nature of the material employed.

The first classification may, for convenience, be subdivided into three methods: First, the membrane system; second, superficial coverings; third, integral or the electrolyte system.

The membrane system consists of an unbroken shield of bituminous material, which may or may not be reinforced with a fabric of felt, burlap or other material, and is particularly intended for that part of the structure beneath the ground level, i. e., for foundation work, also for floors of bridges and dwellings and for roofs.

The second or system of superficial coverings may consist of one or more layers of damp-resisting or waterproof material, and is adapted particularly to the superstructure of buildings, to prevent percolation through lining of sewers, conduits, etc.

The third, integral or electrolyte system, is that in which the concrete mass is itself impregnated with any substance which renders it impermeable to water and dampness, and may be employed more generally than any other system.

It is possible and is many times advisable to combine one or more methods in the same work wherever the

expense warrants it, and the character of the waterproofing is absolutely essential and desirable.

Myron H. Lewis, C. E., has tersely outlined the materials used in the membrane method. The materials employed are coal tar, pitch, asphalt and bituminous compounds made in special formulas. The reinforcing materials consist usually of wood felt saturated with coal tar, asphalt or special compound, or treated burlap, which may be used either singly or supplementary to each other. The materials are placed in the walls or floor to be waterproofed, in one or more layers, the number to be determined by the character of the work and the hydrostatic pressure to be resisted. Where the waterproofing is thoroughly protected from the changes of temperature and no danger of cracking from this cause is anticipated, coal tar may be used owing to cheapness. Where the waterproofing is situated in a structure near extensive sewers or polluted tidal waters, asphalt may be attacked and coal tar substituted. Asphalt, however, is more elastic. Special compounds are on the market which are acid, alkali and gas-proof, and may be applied in a cold liquid form. It is also most important that the waterproofing layer or membrane be continuous. During construction this class of waterproofing should be protected from the heat of the sun, until it is thoroughly hardened. To sum up the use of the membrane method the following rules should be carefully followed:

1—No waterproofing, especially for difficult and water-pressure work, should be undertaken when the temperature is below 25° Fahr.

2—Allow sufficient time, room and accommodations in which to properly apply the materials.

3—Design the structure to properly receive waterproofing, for the design will either make impossible proper waterproofing, or will invalidate the best materials after they are in place.

4—Specify always that the waterproofing shall be done only by experienced and skilled labor.

5—Thoroughly protect the waterproofing during and after application.

6—Inspect waterproofing at all times during application.

7—Do not depend upon guaranties.

8—Do not use a set or standard specification.

The second method of waterproofing, which may be termed a method of superficial covering, may consist of one or more applications or layers of a damp-resisting medium on the surface of the concrete mass. This application may consist of a wash or liquid, which may be brushed over the concrete surface and which is gradually absorbed by the concrete filling up the pores in the same manner as white lead covers and fills a wood surface. While there are many compounds on the market based on this method, some of which are quite satisfactory, the best concrete engineers do not consider this to be as lasting as either the membrane method or the integral system. The reason for this is, that a large number of these coatings, if exposed to severe weather conditions, will gradually become chipped or will scale off, leaving the concrete as porous as it was before being treated. In many cases also the compound used is detrimental to the concrete itself, as a large number of these compounds depend upon some chemical reaction between the compound itself and the concrete. Profs. Hauenschild and

The integral or electrolyte system can, I believe, be more generally used than either of the other two systems, and if properly used will give the best results. This system of waterproofing depends entirely upon the use of a medium which may be mixed with the concrete itself, filling the voids in the mass, and rendering the concrete impermeable to dampness and water. There is only one way to both insulate and damp-proof a building constructed of concrete, whether it be of blocks or solid concrete, and that is to render the concrete absolutely impervious to moisture. If this be done, not only is moisture prevented from entering the block, but the air contained in the cells of the block or wall is protected against pressure from the outside; that is confined in small cells, which is acknowledged by all authorities

to be the best known conductor possible to obtain. If we attempt to waterproof from the inside alone, and allow the dampness to pass through the outer wall and thence through the air space and reach the back side of the waterproofing membrane, we do not secure the efficiency that may be possible by rendering the entire mass absolutely impervious to moisture. The absorption of moisture by stone, brick, cement or concrete ultimately results either in decay or disintegration, so that if the concrete can be made impervious, it prevents the mechanical action of water passing through and among the particles of concrete, thereby disintegrating the mass, and also the action of chemically charged moisture, which is responsible for the ultimate decay of all building material. In the case of concrete blocks, if it were possible to trowel and finish off the face of the block the same as a sidewalk is finished, there would be very little penetration of moisture, but this is impractical. It seems, therefore, that the simplest, most practical and least expensive method is to impregnate the mass either with a liquid or solid substance which will render it absolutely impervious to moisture. It must also be borne in mind that whatever material is used, it must not be of such a nature as to discolor or injure the concrete. I desire to take up briefly some of the various methods and materials that are now being used for this purpose. There are many excellent waterproofing compounds, some in liquid form and others in a powder, which may be easily mixed with the concrete and which, if properly used, will give very good results. Care should be taken in the selection of waterproofing compounds, so that no compound which has not proven successful by long usage be used. The base or principal component of many of these compounds is some organic resinous acid which combines with the free lime liberated and in solution to form a resinate of lime. There are also many compounds containing paraffine or bituminous bases, hydrated lime, etc.

Richard H. Gaines, of the New York City board of water supply, has secured excellent results in waterproofing concrete by the substitution of 5 to 10 per cent of the cement by weight of dry and finely ground colloidal clay, using a small percentage of alum solution in the water used for the mixing. He has shown that the permeability reduces almost to zero by increasing strength of solution to 5 per cent and an increasing strength up to 2½ per cent solution, and a decrease for greater strength of solution. The addition of colloidal clay shows a reduction in permeability to zero and material increase in strength for 5 to 10 per cent of clay. The use of both produces similar results. In this case the clay acts as a colloid, and is of a jelly-like nature, coating the grains of sand and filling all voids. The compressive strength of one to three mortar briquettes at twenty-eight days was 1,635 pounds per square inch. The substitution of 5 per cent of colloidal clay in the cement increased the compressive strength to 2,350 pounds. The tensile strength was increased from 205 pounds without clay to 258 and 335 pounds with 5 and 10 per cent of clay, respectively. There are doubtless many classes of work where it would be possible to use a good clay, which would be much cheaper than some other kinds of waterproofing material. There has been a large amount of work done both experimentally and in actual work with the use of hydrated lime as a waterproofing medium, and for many kinds of concrete work this is undoubtedly one of the simplest and most efficient methods of waterproofing concrete. It has long been known that if small proportions of lime putty were thoroughly incorporated in concrete, that the resulting mass was much more waterproof than with cement and sand alone, but until the last few years it has not been possible to secure lime in a commercial hydrated form suitable for this work. It is not only difficult but disagreeable to secure a good mixture of lime putty and concrete and the best results are obtained when the lime is mixed with Portland cement dry before the water is added. I desire to show herewith the results of some long time tests made with the use of various mixtures of Portland cement, sand, and hydrated lime, which were made by



THE BANQUET OF THE CANADIAN CEMENT AND CONCRETE ASSOCIATION AT TORONTO.

Dr. E. W. Lazell, consulting engineer, Philadelphia, Pa., and these tests show conclusively that there is gain in tensile strength with the use of hydrated lime and the porosity is reduced to zero under a water pressure of thirty pounds per square inch. An excellent example of waterproofing concrete with the use of hydrated lime is given by Bertram Brewer, city engineer, Waltham, Mass., in the construction of a two-million gallon reinforced concrete reservoir. Five per cent of hydrated lime was added, rendering the reservoir waterproof. W. Purvis Taylor, engineer of tests, Philadelphia, Pa., corroborates the results of the use of hydrated lime for waterproofing concrete. For the manufacture of concrete blocks, walls, reservoirs, cisterns and concrete dams, there is no better or cheaper method of waterproofing than the use of a reasonable amount of high calcium hydrated lime properly and thoroughly mixed with the Portland cement. The principle upon which the hydrated lime renders the concrete impervious to moisture depends largely upon the physical action of the hydrated lime in filling up the voids and rendering the concrete mass so dense that water or moisture cannot penetrate through it. On the other hand, there is little, if any, chemical action between hydrated lime and concrete, and wherever the surface is exposed to the action of air or water there is a gradual carbonization of the lime to carbonate of lime, so that its waterproofing qualities increase with age instead of diminishing, as with many other superficial coatings.

In summing up the various methods of waterproofing concrete, it must be borne in mind that there is no set rules to go by, neither could one waterproofing material be used under all conditions and in all places. On work of any great importance, competent engineers should be secured to draw up specifications covering the class of waterproofing to be used for the building of the structure, and the resulting work should be carefully inspected, as much harm and expense may be caused by the improper use of the waterproofing material if improperly used. As the use of concrete is entering into so many new channels, the modern user of concrete should adopt, put into practice and become experienced in the use of such waterproofing methods and materials as his particular work may require. I desire to emphasize this fact, that as users of concrete in its various forms, we cannot ignore the absolute necessity of recognizing the vital importance to this industry of properly protecting and waterproofing concrete. As the construction of concrete houses and buildings becomes more common, the public will demand that they be as damp-proof and healthful to live in as if constructed from wood, stone or brick. It, therefore, behooves architects, concrete engineers, and builders, to study this question carefully so they may be prepared to successfully meet the many problems of waterproofing concrete.

Mr. Allen's paper was followed by a lengthy discussion on concrete blocks and waterproofing.

A. W. Burge, of the Trussed Concrete Steel Company, Toronto, then read a paper on "Reinforced Concrete Design from the Standpoint of Practical Engineering," after which the meeting adjourned.

EVENING SESSION, MARCH 3.

The evening session was taken up with papers and addresses, the first of which was by W. J. Francis, C. E., Montreal. His subject was "Field-made Concrete."

"The Use of Cement in Municipal Work" was the subject discussed by A. W. Campbell, Deputy Minister of Public Works, Province of Ontario.

Emile G. Perrott, architect, Philadelphia, Pa., read a paper on "Reinforced Concrete in Building Construction." Mr. Perrott had nearly one hundred views of concrete buildings of different kinds, and in all stages of erection, showing the various types of reinforcing used in floors, beams and spans.

Fred A. Norris, of Boston, Mass., gave a very interesting and entertaining paper on "Ornamental Concrete Stone." He had a number of illustrations showing concrete for ornamental purposes, and in some buildings where it was laid up in a wall beside stone or granite, and the effect it made. Views were thrown on the screen of ornamental concrete work that had been subjected to the severe New England winter and the sea spray. These showed no indications of disintegration or hard usage.

AFTERNOON SESSION, MARCH 4.

The meeting was called to order by President Gillespie, who being called from the room, Vice-President Kahn presided in his stead.

The first paper was by C. R. Young, lecturer on applied mechanics, University of Toronto. His subject was "Artistic Concrete Bridges," and was illustrated by a number of pictures of bridges. He said in part: "Municipalities do not want to pay the price for artistic structures. One unfortunate thing in the construction of bridges is competitive bidding. Bidders leave out artistic lines, and ugly structures result. There is a lack of good taste on the part of engineers and the public.

Engineers have not received the training along architectural lines, and on no account should an engineer attempt to design a monolithic structure for art. More money should be expended to get better structures along artistic lines.

Great advances in architecture are made in stone. We are coming to an iron and concrete age, and a structure to be well designed should be strong, sanitary, fireproof and harmonious.

Four principles may be laid down. First, the structure should be suitable for the locality and use to which it is put. The general form of the structure

has more to do with the value of it, and there should be no attempt to disguise the materials.

Symmetry depends on the odd rather than the even number of spans—three being an ideal number. The style of the span should be considered, the arch being in favor.

Stone cannot be used in tension, but concrete can. More attention should be paid to the general appearance of the concrete bridge.

Chairman Kahn called on Mr. Burke, of the Architectural Institute of Canada, for a few remarks. Mr. Burke spoke of concrete construction in general, and the stringent building laws of the city of Toronto.

Chas. D. Watson, C. E., Cleveland, Ohio, a former resident of Toronto, was called upon for a paper on "Factory-Made Concrete Building Products," which was illustrated by a number of stereopticon views.

Merrill Watson, general sales manager of the Consolidated Expanded Metal Companies, of New York, was called upon for an address. He made a few brief remarks, and brought the greetings of the National Association of Cement Users. He told of the educational campaigns they were carrying on, and the work of promoting the uses of concrete.

The meeting then adjourned.

MORNING SESSION, MARCH 5.

The meeting was called to order by Vice President Kahn, who introduced Richard Humphrey, president of the National Association of Cement Users.

Mr. Humphrey told of the preliminary organization of the national association at Indianapolis. It is



C. H. THOMPSON, OF TORONTO, COUNCILLOR.

necessary to educate the workers of cement, rather than the engineers and architects. He warned the association of the commercial side of the business in the organization, which should not be allowed to enter into it. Take an interest in the smaller man, the one who needs help.

There is a great future in concrete, and the development of it may be impaired by the improper uses of the material. Architects and engineers should know how to use concrete. The association should stand for standard specifications of concrete; develop styles of architecture and methods to apply in the using of Portland cement and to stand for concrete, and not some imitation.

At the close of Mr. Humphrey's talk he was asked a number of questions about concrete tile and many other uses for cement, which he answered satisfactorily to all.

A recess was taken, and, after being called to order by Vice-President Kahn, the body went into executive session.

At this meeting the principal topics were the standard specifications and future work of the association.

AFTERNOON SESSION, MARCH 5.

The session was called to order by President Gillespie, who called on M. Morssen, C. E., of Montreal, who spoke on "Factory-Made Concrete."

A. C. Blanchard, Sewers Engineer of Toronto, then spoke on "The Evolution of Concrete in Municipal Engineering," and told how concrete had entered into city work. The engineers themselves realized the importance of this material, and were doing their best to push it.

Sanford E. Thompson, C. E., of Newton Highlands, Mass., spoke on the "Selection of Concrete Materials."

Richard L. Humphrey gave a very interesting talk

on "Concrete Sewers." He said that concrete is the most adaptable material for sewer construction. It has been found to be very satisfactory. He told of concrete sewers that had been in use for twenty years and were giving excellent satisfaction.

The convention then adjourned.

THE BANQUET.

The committee on arrangements decided that for entertainment a banquet should be given on Thursday night. It was 9 p. m. when the one hundred guests filed into the banquet hall. The tables were tastily decorated, and the beautiful ornamental decorations of the room showed up to splendid advantage under the brilliant lights.

A picture of the group was taken, after which every man present carefully inspected the specifications, which were as follows:

Specifications.

The Menu shall be composed of the following:

Screened Lynn Haven Oysters
Varying in size from $\frac{3}{4}$ inch to 2 inches
Potage
Windsor a la Star Brand
Escalloped Halibut en Coquille International
Duchess of Lehigh Potatoes
Fillet of Beef
Crushed Stone Sauté
New Potatoes Browned, well mixed with
Sifted French Peas
Breast of Chicken
Reinforced with Bacon
Julienne Potatoes, well tamped in place
Ideal Chicory Salad
Machine Mixed Neapolitan Ice Cream Bricketts
Fancy Concrete Cakes
Well Cured Camembert Toasted Crushers
Coffee
The Finished Work to Be Free from Voids
or Rough Spots

After all the materials had been brought in and thoroughly mixed to the satisfaction of the most critical, President Gillespie, who presided as toastmaster, announced that there would be eighteen speakers to respond to the toasts. He first proposed the toast to the King, which was followed by a solo by Mr. Sherrie.

T. Horn responded to "Canada," and spoke of its development and future.

"The Industry" was responded to by Dean Galbraith, who in turn called on Merrill Watson, of New York, who spoke for the reinforcing branch. He laid much stress on the haste of concrete work. J. Augustine Smith, of South Bend, Ind., spoke on fire losses and the part concrete plays in fireproof construction. T. L. Dates, for the cement manufacturers, spoke on the conditions as they exist in Canada today.

"The Men Who Specify" was the toast responded to by Ivan McDonald, who said it was necessary for the architect and engineer to know concrete and its possibilities. He in turn called on Walter J. Francis, who said to avoid substitution in work and not content oneself with quality of work done, but always strive to improve it. Mr. Langton, of the Imperial Architectural Association, thought that the members of the association should help develop art in concrete, and not try to imitate other materials.

Mr. Jaffrey, manager of the show, was called upon and spoke on that phase of the convention, expressing the opinion that the benefits gained to the industry by such show or exhibit to be so great that such would no doubt become a marked feature in coming conventions.

"Our Guests" was responded to by J. E. Murphy, who in turn called on Lucius E. Allen, Sanford E. Thompson and John E. Moore.

"Municipal Interests" was responded to by James Pierson, who thought that municipalities overlooked the possibilities of cement and concrete.

Others who were called on and who made brief remarks were Gustave Kahn, J. P. Griffin, A. C. Blanchard, A. Chamberlain and M. Morssen.

It was a late hour when the banqueters adjourned, though reluctantly. With a hearty good will every one joined in

"It's always fair weather when good fellows get together,

With a stein on the table and a good song ringing clear."

NOTES OF THE MEETING.

President Peter Gillespie makes a splendid presiding officer, and not in any session did the interest lag for a moment. His work during the past year has placed this organization in the fore with any association in the country.

Kennedy Stinson, of the Stinson-Reeb Builders' Supply Company, Ltd., Montreal, was one of the charter members. Mr. Stinson is one of the younger men, whose ability and energy place him among the leaders in the material business in Canada.

W. G. Joy, of Joy & Son, Napanee, Ont., was one of the interested members present. He says the concrete business has a fine outlook this season, and they look for a large amount of work.

J. Arthur Laprès, representing the Wm. G. Hart-

ranft Cement Company, Limited, Montreal, came in to greet Vulcan cement customers. Mr. Laprès has lately joined the selling force of this company, but he is a good mixer, so is perfectly at home.

J. P. Griffin, who is well known among the cement men through his connections with machinery companies, took in the convention and met his old friends. He is now with the Frank Williams Company, of Buffalo, coal producers.

J. Allen Ritchie, manager of the Three Rivers Supply Company, Three Rivers, Quebec, is an enthusiastic association man. His company is supplying a large amount of materials for the rebuilding of the city, which recently had a disastrous fire.

B. H. Rader, eastern sales manager of the Universal Portland Cement Company, Pittsburg, looked in on the convention and show for one day.

THE EXHIBITS.

The exhibits at the St. Lawrence Arena attracted large crowds of engineers, contractors, architects and builders. There were a number of manufacturers from the United States, though many of them were through Canadian representatives.

The Canadian Foundry Company, of Toronto, exhibited the Number One Koehring mixer with elevator and charging bucket, which can be run by any power. A seven and one-half horsepower motor ran this machine. This company has made arrangements with the Koehring Machine Company, of Milwaukee, Wis., to manufacture the mixer in Canada and sell it in that territory. The Barlock steel and concrete construction for floor and skylights was also demonstrated. H. O. Edwards, Philip Koehring and E. B. Walker were in charge.

The Canadian Portland Cement Company, of Toronto, had a prominent place at the entrance. They showed samples of their products of back mills in the raw and finished material. The booth was decorated by a number of pictures taken of the plants and the famous Quebec bridge disaster. The exhibit was in charge of W. C. Huff, C. A. Lingham and W. S. J. Johnson. These gentlemen dispensed true hospitality, and they always had a crowd around their booth.

Robt. W. Hunt & Co., of Chicago, had a booth where tests of briquettes were made by the Riehle testing machine. In fact, any kind of a test was made. Chas. Warnock, manager, and C. R. Oslard, of the Montreal office, John E. Moore, chief chemist, and Robt. H. Moore, of the Chicago office, were on hand to explain the necessities of testing cement.

The United States Steel Products Company had an exhibit which attracted considerable interest. It was in charge of A. D. Level, of the New York office, B. H. McEwen, of the Buffalo office, A. W. Allen, C. B. Rittenhouse and Geo. Childs, of the Montreal office. They demonstrated the style 42 triangle mesh reinforcing wire, manufactured by the American Steel & Wire Company, in a concrete floor slab. The span was 8' long by 6' wide, and 5" in thickness. The sectional area of steel was .15 per foot. Twenty-eight pounds of reinforcement was used. The total load during the week was 21,830 pounds, or 455 pounds to the square foot. The deflection of the span which was loaded with pig iron was twelve-one hundredths of an inch. On Saturday the span was loaded to the breaking point. They also showed the lock joint type of concrete sewer, which is now in course of construction at Havana, Cuba, being laid by the Lock Joint Pipe Company, of New York. The idea of the lock joint is to lay it under water, 36-inch pipe to be used, and in this one contract 1,800 tons of triangle mesh are used for reinforcing the pipe.

F. H. Hopkins & Co., Montreal, exhibited the Ran-

some concrete mixer, manufactured by the Ransome Concrete Machinery Company, of Dunellen, N. J. They had three machines, two of which are the standard type of mixer used largely by contractors for street work.

Clarke & Monds, engineers and contractors, Toronto, had pictures of buildings and miniature section of the Turner Mushroom system of reinforcing concrete.

The Industrial Chemical Company, of Swansea, Ont., demonstrated the "Kantleak" waterproofing compound by tests on concrete blocks.

The Trussed Concrete Steel Company, Toronto, gave a practical demonstration on the effect of the cantilever action on a concrete beam. The beam was 8" wide by 12" deep with a 12' span from center to center. The beam was reinforced with two ¾" by 2" Kahn bars. The beam was loaded in the center and on each end. In addition to this, they had a number of pictures of concrete buildings reinforced with the Kahn system bars as well as the other products manufactured by this company. Gustave Kahn, Canadian manager, was in charge, assisted by W. E. Evans and J. M. May.

The Hickson Monolithic Sewer Mould Company, Mount Gilead, Ohio, had a section of a concrete sewer which showed their centering and molds for this class of construction. Joseph Hickson had charge of the exhibit.

The Senator Mill Manufacturing Company, of Galt, Ont., demonstrated the St. Clair concrete mixer as well as their concrete block and concrete brick machine. A. D. Griffin, of this company, explained the workings of the machinery and how concrete brick were cast in thousand lots at the Berlin factory.

The Canadian Art Stone Company, of Toronto, had a display of artistic concrete work, which showed what beautiful designs could be worked out with this material, using white Portland cement and white sand for the aggregate. The lawn furniture, vases, urns and flower pots were designed especially for this show, and the lines in designs were sharp and clear. C. H. Thompson, president, and C. H. Badgley, secretary, were in charge.

Wettlauffer Brothers, Buffalo, N. Y., and Stratford, Ont., had a prominent exhibit, where all the concrete machinery they manufacture was on exhibition. This included concrete block and concrete brick machines as well as concrete mixers. William and John Wettlauffer, assisted by their father, George Wettlauffer, had charge, and they made a number of sales.

Wadsworth, Howland & Co., New York and Boston, had the Bay State brick and cement coating on exhibition and demonstrated its use to the many interested visitors. The booth was attractively decorated with pictures of residences and buildings in which their product was used. E. A. Foster was in charge.

Mussens, Limited, of Montreal and Toronto, had on exhibition the 1909 type Smith mixer, of which they are the Canadian agents. For lighter work required by smaller contractors they sell the Chicago mixer, which was also on exhibition. W. H. C. Mussens was in charge of the exhibit.

The Lehigh Portland Cement Company, Limited, of which the Thorn Cement Company of Toronto are the selling agents, had a booth in which samples of their product, both raw and finished materials, were shown. They also had pictures of their plant, which is located at Belleville. A. W. Thorn had charge of the exhibit.

The Ideal Concrete Machinery Company had an exhibit which was made up of concrete products made on their machines. The first design showed the effect to be produced for park, garden or residence entrances trimmed with concrete ornaments. The entrance has columns on either side with Ionic caps.

The fence surrounded the entire exhibit. In the center of the wall a mantel and fireplace of concrete brick trimmed in white set off to splendid advantage the effects. The exhibit was in charge of C. F. Pulfer, Canadian manager; J. Augustine Smith, secretary of the company at South Bend, and Fred M. Leach, Michigan salesman.

The Belleville Portland Cement Company, of Belleville, Ont., was represented by Sales Manager Vermilyea and A. Chamberlain, Toronto representative. They showed sacks of cement and samples of the material from which the cement is made.

The Cement Tile Machinery Company, of Waterloo, In., has one of the drain tile machines in operation as well as a concrete mixer. This is one of the companies that are going after the business in Canada, and to care for it will establish a branch at Chatham, Ont. W. H. Stewart had charge of the display.

The United States Gypsum Company, Chicago, Ill., had a very attractive booth in charge of George E. La Ville, S. H. Baird and H. C. Baird. It was the only thing of its kind in the building and was a section of a wall finished with their well-known products. They also had samples of ground gypsum rock.

The Imperial Plaster Company, of Toronto, had samples of gypsum rock from which their plaster is made as well as the finished product and a section of wall plastered.

The Schultz Brothers Company, of Brantford, Ont., had a display of sand lime brick of various colors. A fireplace made of sand lime brick with a predominating pink colored brick was ornamented with other colors of buffs and grays.

T. McQuain, of Toronto, Ont., demonstrated the "little wonder" concrete block machine.

The Rogers Supply Company, of Toronto, retailers of builders' supplies, had samples of crushed and rubble stone and other supplies. They also had the Hadsell concrete mixer on display.

The National Portland Cement Company, of Durham, Ont., had pots of neat cement and samples of concrete blocks, which were made of National brand cement.

The Cement Products Company, of Toronto, had a display of ornamental cast stone work with a wall and balustrade of concrete. R. G. Rittenhouse, superintendent of the plant, had charge of the exhibit.

The London Concrete Machinery Company, of London, Ont., had a large display of machinery adapted for concrete materials. The exhibit was in charge of Henry Pocock and J. C. Doidge. They had concrete mixers, concrete block machines, concrete brick machines, etc. Their slogan is, "The largest concrete machinery company in Canada."

The Raymond Concrete Pile Company, of Montreal, had a miniature concrete pile and driver to demonstrate their system of piling for buildings, piers, etc. They also had pictures of work done by them, one of which was the C. P. R. bridge at Lethbridge.

The Perfect Mould Company, of Kendallville, Ind., had on display machine for concrete fence moulds, brick machines, etc.

The Roman Stone Company, of Toronto, had an attractive exhibit which was much admired by the visitors. It consisted of a bank front and showed the adaptability of concrete for such purposes. Two lions' heads carved with the coat-of-arms of the Montreal Bank completed the ornamental work. Two pilasters were carved to show that concrete could be worked from the plain cast work and worked as easily as natural stone. R. G. Cunningham had charge of the display.

The Jackson System of building concrete houses, of Akron, N. Y., was demonstrated by models of house walls. The booth was in charge of F. W. Jackson, president of the company.



VIEWS OF EXHIBITS AT ST. LAWRENCE ARENA, CANADIAN CEMENT AND CONCRETE EXHIBITION AT TORONTO.

CEMENT USERS AT MINNEAPOLIS

Fifth Annual Convention of Northwestern Cement Products Association, Held at The Armory, March 2, 3 and 4, Winds up the Convention Season in a Blaze of Glory.

The fifth annual convention of the Northwestern Cement Products Association was the most successful yet held by this live organization. The big new Armory built of cement bricks was used both for the meetings, which were held in the main upper hall, and the exhibition, which occupied the big auditorium and a part of the balcony. The Armory is well adapted for the purpose of holding shows of this character.

The sessions of the convention were highly interesting and instructive, covering a wide range of subjects. Some of the brightest and ablest minds in the industry contributed to make the program one of exceptional merit. From every standpoint the convention was a tremendous success.

All of the officers deserve their meed of praise for the manner in which the entire affair was conducted. The association renewed its confidence in its officers by practically re-electing all of them. Not one of them but what worked like a Trojan for several months previous to the date of the convention, and throughout the progress of the show. Especial praise should be given Martin T. Roche, the able president, and J. C. Van Doorn, the efficient secretary of the organization, both of whom were re-elected without opposition. The principal change made in the list of officials was the election of L. V. Thayer as vice-president of the association, a compliment well merited. He is sure to prove a tower of strength to the organization.

All of the officers worked in harmony for the ultimate success of the undertaking, and the gratifying results obtained speak volumes for their efforts.

While the association is but five years old, it is one of the strongest numerically and otherwise in this country, and the influence of its labors has left a permanent impression on construction in the Northwest, as in no section of the country are the vast possibilities of concrete construction better understood or appreciated than here.

Throughout the three days of the show the attendance was very large, and the interest was keen until the last minute—the vast crowd seeming loath to leave the exhibition. One noticeable feature was the lively interest displayed in the convention by the daily press of the Twin Cities. Every day glowing accounts of the big exhibition were printed, and a number of cartoons of the celebrities of the convention appeared in the papers, which we reproduce in this issue.

Although the show feature opened at 10 o'clock in the morning, the first session of the convention was not held until 2 o'clock that afternoon. The membership is composed of the leading concrete workers in the great Northwest, and every incoming train brought delegates who came to learn more about the greatest plastic building material of the age.

OPENING SESSION, MARCH 2.

Promptly at 2 o'clock the opening session of the Northwestern Cement Products Association was held in the immense ball room or assembly room on the third floor of the Armory.

President Martin T. Roche delivered his annual address, in which he pointed out the growth of the association five years ago. It was just five years ago that the association was organized in the City Hall in Minneapolis, and today it is holding its meetings in the city of its birth.

President Roche called attention to the fact that the government had made an appropriation of \$100,000 to establish a geological bureau for testing building material. This appropriation is \$50,000 less than was asked for, and President Roche urged the members of the association to write their congressmen and senators, in order to interest them so that an additional appropriation of \$200,000 may be had next year. Senators Nelson and Platt wrote letters tending their support, which were read to the convention. Other men, prominent in public life, wrote letters along the same line, which were also read. President Roche also called attention to the advantage of every man in the cement business talking the merits and good qualities of cement at all times, and if that is persisted in, the time will soon come when the annual production of cement will reach astounding proportions. Mr. Roche introduced Richard L. Humphrey, president of the National Association of Cement Users, who gave a talk of general interest to the concrete worker, along the lines of that delivered at the recent convention of the Nebraska Cement Users Association, which was printed in full in the last

issue of ROCK PRODUCTS. Mr. Humphrey spoke very interestingly and instructively upon the proper method of the selection of materials for block making. He urged a wetter mix in the making of building blocks. He pointed out that the concrete block or tile would not be stronger than the strength of the aggregates used, and that to get the greatest strength it was necessary to work out the voids. He also stated that the Portland cement manufacturers were practically all making first-class, uniform cement, that immense strides have been made in the manufacturing of cement in the last few years.

An interesting talk was given by Ernest McCullough, of Chicago, upon "Overcoating Houses," by cement coating upon houses, and using a metal lath. Mr. McCullough stated that houses that were practically beyond the stage of usefulness could be rejuvenated, made young again, by covering them with a cement coating on metal lath, and that there was a wide field open in this direction.

E. E. Smith, of Barron, Wis., read a very interesting paper on Concrete Silos and Building Blocks. He strongly advocated reinforcing silos to avoid undue stress and cracking. His paper was full of vim, and probably aroused more discussion than any address of the day, by his frank and open treatment of the subject.

EVENING SESSION, MARCH 2.

The formal opening of the convention took place at 8 p. m. in the convention hall, and a large and enthusiastic crowd was present.

Mayor James C. Haynes, in welcoming the delegates of the Northwestern Cement Products Association, bade them welcome in the name of Minneapolis, to the most progressive, aggressive and most up-to-date city of the West. He elaborated on the resources and possibilities of Minneapolis as a jobbing center; he told of its beautiful parks, its magnificent residence districts, and of its many modern buildings of reinforced concrete, and the immense use of Portland cement in the building of streets and sewers, and complimented the association on its growth and development, and waived all laws as far as the delegates were concerned during their visit in the city. The Mayor invited them to hold the next annual convention in Minneapolis, and promised them anything they wished if they would be the guests of the city next year.

Fred R. Salisbury, in an eloquent and pleasing address, welcomed the delegates in the name of the Minneapolis Commercial Club. He told them that the Commercial Club felt that they were responsible to a great extent for the existence of the Northwestern Cement Products Association, as it was greatly through their efforts that the first meeting was called. He assured them that the Commercial Club was ever at their service, and would do anything in their power to promote the success of the organization.

James A. Tyler welcomed the delegates in the name of the Builders' Exchange, and wished them success in their future growth, and also regretted that he could not enter into the spirit of the "Concrete Age," as he was too old, but that his sons would take up the work and do their share in the building line in that direction.

Martin T. Roche, president of the Northwestern Cement Products Association, responded as follows to the address of welcome of Mayor James C. Haynes and representatives of the Builders' Exchange and the Minneapolis Commercial Club:

As in years past, Minneapolis has again this year shown her kindness and good will to the Northwestern Cement Products Association in innumerable ways. The members of this association feel grateful towards Minneapolis, and kindly towards her.

She, today, is in the lead in the Northwest in population, in progressiveness, and in all else that goes to make up a metropolitan city; she stands today as the metropolis of the Northwest. She is indeed favored by having in the executive chair a man of such sterling worth and pleasing personality as the gentleman who has addressed us this evening, Mayor James C. Haynes.

Another real friend of this association is the Minneapolis Builders' Exchange. They have in the past stood shoulder to shoulder with us, and have helped to make this order grow from a handful of men, as it was a few years ago, to what it is today—the second largest association of cement men in this, the United States. We are honored by having F. G. Tuttle, president of the Exchange, with us this evening, and I wish to thank that organization through him for all the kindness shown us in the past.

When Fred R. Salisbury addressed you tonight he bade you welcome in the name of a club that stood by our organization at the time of its birth, who stood by us when we were a tiny infant in the cradle, who stood by us and saw us grow into boyhood, and who still stands

at our side as we are entering the threshold of manhood, and all through the past years the Commercial Club of Minneapolis has ever helped us, financially, by example, by kind words and by deeds. The Northwestern Cement Products Association owe to the Commercial Club more than they can ever repay, and I take this opportunity of thanking them in the name of our association, from the bottom of my heart, for all the kind things they have done for us, and I assure them that we will reciprocate in the only way that lies in our power, and that is to spread the fame of the fair city of Minneapolis through every town, village and hamlet throughout the entire country.

The exercises were intermingled with vocal and instrumental selections. Robert F. Gehan, a fine baritone of some note, sang "The Brigand," and in response to an encore gave "Wishes." The program ended with "America," played by the band.

AFTERNOON SESSION, MARCH 3.

F. A. B. Patterson, Fairmont, Minn., started Wednesday, the second day's program with a paper, "Forms for Concrete Highway Bridges."

C. W. Boynton, of Chicago, outlined methods of popularizing cement products. He suggested careful and conscientious work, suggesting that good work required good materials, and a good bond cannot be secured with dirty aggregates.

Lee Stover, Watertown, S. D., sent a telegram that he would be unable to come on account of sickness, and President Roche telegraphed Mr. Stover expressing the sympathy of the association.

EVENING SESSION, MARCH 3.

The program was long and interesting, and contained many of the best addresses of the convention.

A most interesting number was the address of Howard H. Gross, of Chicago, on "Good Roads and How to Get Them." Mr. Gross is an authority of world-wide reputation, and is one of the four men selected by President Roosevelt to represent the United States at the great international good roads congress held in Paris last October. In addition to being a practical road builder, Mr. Gross has made a deep study of the effect of good roads upon farm life and farm property, and the all-important feature of providing the money necessary for road building upon a large scale.

There are many men who can talk in an interesting way upon the technical art of road building, but there are very few who can make such a strong presentation of the subject as the gentleman named. After calling attention to the value of good roads to those living upon the farm, the economies that resulted from them, and that every dollar wisely expended in permanent improvements upon the highways added at least \$5 to the value of the farm served by them; that good roads mean better schools, and make the consolidated township school a feasible proposition, whereby the children upon the farm may get the equivalent of a high school education and live at home, he called attention to the drift of young men and women from the farm to the cities. He said the best blood and brawn of the farms was being depleted, and that these farms were rapidly passing into the hands of tenants; that "we were building up in this country a condition that has been the curse of Ireland for 300 years."

An Unsolved Problem.

He pointed out the extraordinary fact that here in America, where is gathered the largest aggregate wealth known in the history of the world, a people having a larger earning power than any other, and one which has made tremendous strides in so many departments of human achievement, had so utterly failed to solve the road problem; that here in the richest country in the world were to be found the poorest roads on earth. He maintained the difficulty was fundamental; that "we have been endeavoring to unsnarl the tangle by pulling the wrong string;" that the conception that has obtained for generations throughout most of the land that the roads belonged to the farmer, and that it was his duty to build and maintain them, was unjust and indefensible, and was largely responsible for this condition.

He contended that the roads are public property; that they belong to every one and were used for and on behalf of every individual. Mr. Gross made a thorough investigation of Minnesota conditions, and gave his auditors some startling figures. He mentioned that in this state, with a population of almost exactly 2,000,000, fifty-three per cent of the population lived in towns and cities, while forty-seven per cent lived upon the farms; that out of an assessed valuation of



CARTOONS IN MINNEAPOLIS DAILIES SHOWED THE INTEREST TAKEN IN THE CONVENTION.

\$1,060,000,000 the value of farm lands with the improvements thereon, leaving out of consideration St. Louis County, was \$400,000,000, or almost exactly forty per cent of the total assessed valuation of the state. Again quoting Mr. Gross:

St. Louis county is unique, on account of the ore deposits. The land values are five or six times the state average, and should be eliminated in any general discussion of the road problem as applied to general state conditions. He stated that St. Louis, Ramsey and Hennepin counties contained forty-seven per cent of all the taxable property in the state, while the road mileage of the counties named was only two and two-thirds per cent of the total. The average assessed valuation of farm lands throughout the state is \$14.08 per acre. Leaving out St. Louis county, the state average is \$10.31 per acre. The average for the state south of Mille Lacs is about \$12 per acre. Therefore, the average assessed valuation of a 160-acre farm in the south half of Minnesota is about \$1,920 per quarter section, but for the purpose of easy figuring let us assume the valuation of \$2,000 per quarter section.

With this in view, let us consider for a moment the plan of building roads by state aid, which is found to be not only equitable and fair in dividing the burden of road improvements, but has, whenever it has been tried, been found popular, successful and effective. It is the plan that gets the roads, and twenty states are now building under the state aid plan. While Minnesota has a limited aid law, it is insufficient to meet the requirements and give the state the roads needed for many years to come. Let us assume for the purpose of illustration an expenditure of \$3,000,000 a year for a period of ten years in building stone and gravel roads upon the main highways upon the state aid plan, wherein the state should pay one-half the cost and the balance to be paid by the township where the road is situated.

20,000 Miles of Road.

To raise the state's proportion (or \$1,500,000) upon the present assessed valuation would require a one and one-half mill tax upon all the property in the state. A tax of one and one-half mills upon the farm in question would be exactly \$3 a year. To raise a like amount by taxing exclusively the farm lands in the various townships of the state would require a tax rate in the south half of the state of four mills. This would make the tax upon the farm \$8; and the \$3 for state aid would be \$11 per farm, or \$110 in the ten-year period, making a tax approximately seven cents per acre per year. This campaign continued for ten years would mean the building of about 15,000 miles of stone or gravel roads, which, added to the roads already built, would give a total exceeding 20,000 miles out of a road mileage of 78,000. This would cover the main highways and would accommodate at least four-fifths of all the wagon traffic in the state. The expenditure of the \$30,000,000 in the ten years would add at least \$150,000,000 to the actual property value in the state.

Mr. Gross cited authorities to show that with roads good every day in the year, so that the farmer might market his crop whenever he wished to do so, that he could, by watching the market, and taking advantage of good prices, make from two to five cents a bushel more profit on every bushel of grain raised, while one-half cent a bushel would pay the entire tax for hard roads.

With good roads the farmers could store their grain on the farm and save in storage alone more than all the road taxes each year. Good roads bring relief. The tax for them is not a burden, it is an investment that pays dividends every day in the year, both in money saved and improved conditions.

F. S. Phipps, of St. Joseph, Mo., read a very interesting paper on "Steam Curing of Blocks." Mr. Phipps pointed out the greater uniformity of the blocks, so cured, their greater density, and the ability to manufacture them at any time during the year, regardless of outside cold and wet.

C. A. P. Turner, of Minneapolis, delivered an instructive address upon "Reinforced Concrete Construction," with reference to some of the tests and what they have shown. He urged alertness to protect cement interests from unreasonable building ordinances and legislation. A number of views were shown of warehouse, factory, mill and office structures in various stages of progress in all parts of the country.

J. C. Burch, of Des Moines, Iowa, read a thoughtful and well prepared article on the following subject:

FIRE LOSS VS. FIREPROOF CONSTRUCTION.

By J. C. Burch, Secretary, Iowa Portland Cement Company, Des Moines, Iowa.

I have been deeply interested in the address of the gentleman (Mr. Gross) who has preceded me. His plan for improving the public roads ought to be presented to every citizen of the United States, and I regret that his time with us has been so limited. His very interesting address is convincing evidence that he has given the subject most earnest and careful thought, and I hope that as we leave this hall we will all become boosters for better roads.

Every man who is worth while has a hobby, some specialty to which he is giving more thought and study than to any other one thing. He is the overflowing fountain from which gushes a stream of influence which spreads over the barren wastes of inactivity and produces a rich harvest of effort and reform. He is the central power plant generating the power which is transmitted through the cable of language and drives millions of human machines. He is the irresistible force which, like the thunderbolt, shakes the very centers of satisfied stagnation and clarifies the atmosphere of human endeavor. I recall to mind a school friend of mine, who is just finishing his third term in congress, and who, as a young man, devoted a great deal of time to reading the speeches of Patrick Henry. He became so thoroughly saturated with them that it was impossible for him to make any literary effort without introducing something from

the great orator and patriot. We tried every scheme that we could think of to jar him loose from his Patrick Henry habit until we finally hit upon a plan which we felt sure would accomplish this result. We assigned him as a subject for a thesis, "Colic in a Horse and How to Cure it." When the time arrived he proceeded to give us a very exhaustive treatise upon the causes of colic. He explained the whole system of digestion, and called particular attention to the fact that whenever some of the organs of digestion were impaired and were not performing their work, gases would be generated which would cause an abnormal pressure upon the internal organs resulting in pain which we term colic. Finally, after elaborating along these lines, he concluded his address by saying: "In conclusion I ask, What is colic? In the final analysis it is nothing but the confined gases struggling to be released, rushing through the animal from stem to stern, and calling out in the language of the immortal Patrick Henry, 'Give me liberty or give me death.'"

As an organization of manufacturers we represent one of the two most important interests in the world, the farm and the factory. Being the only sources of creative wealth, they constitute the foundation of all business, and everything else is dependent upon them. All other business is but the medium through which these products are exchanged. The ideal community would be one in which all things necessary to the comfort and happiness of the people are produced in sufficient quantities to supply the local demand. In no locality is this possible, but more of the conditions necessary to the realization of this Utopia exist in the Mississippi Valley than any other place in the world. The manufacturer is one who takes some of the materials of nature and by combination or transformation recreates something which is of greater usefulness and value to man. Primarily, agriculture and manufacture are absolutely a difference without a distinction, and who shall say which of the two is the more important, and which offers the larger and more attractive field for investigation, development and the expenditure of energy? It has been said that he who makes two blades of grass to grow where only one grew before is a public benefactor; but who shall not say that he, too, is a public benefactor who takes the inert, rough, unattractive and apparently useless formations of nature and transforms them into something useful, making them "a thing of beauty and a joy forever." I am directing your attention to these things in order that we may have the highest appreciation of our vocation and realize to the fullest extent the responsibilities which we assume.

I am not unmindful of the fact that ordinarily the commercial phase is uppermost in our minds, and yet I believe it is wholly impossible for us to develop useful articles from the great storehouse of nature without thereby benefiting the world in general. Our industrial problems are so intimately connected with the general welfare of the people that the solving of them must necessarily be of great advantage to all. Commercialism and the improvement of man's condition go hand in hand. While the Rockefellers, Carnegies, McCormicks and Edisons have been piling up vast individual fortunes, they have added in an immensely greater degree to the comfort and happiness of others. Therefore we, as manufacturers, have a much greater incentive to apply ourselves to the solution of the interesting problems before us than the mere accumulation of dollars.

The increase of wealth in a community, state or nation is a measure in value of the difference between production and consumption. The great agricultural states of the West have been dependent almost entirely, until recently, upon the products of the soil, and we are now learning, a little late perhaps, that we have been paying tribute of millions annually to other states for articles which can be profitably produced at home. During the last decade manufacturing has been moving rapidly to the westward, until now our sister state of Illinois ranks third in value of manufactured products. Our liberality should begin at home, extending thence to our community, our state and our nation. We are the most liberal and, in some respects, the most progressive people in the world, while in other ways we are a "back number." Our own United States contributed one-third of the relief for the earthquake sufferers in Sicily, and the South American contributions added to ours makes more than one-half of the whole. Leaving out South America and Italy we sent to the stricken country \$1.50 for every \$1 sent by all of the rest of the world combined. While it is true that our wealth exceeds that of any other nation yet it is less than double that of Great Britain, while the combined wealth of Great Britain, France and Germany is one and one-half times that of ours. This is one side of our life, and the others depend somewhat upon our point of view.

Turning now to another side: I know of no better exemplification of the old adage that "haste makes waste" than the enormous loss in this country caused by the inferior construction of our buildings. In our mad rush we have evidently been looking only to the present, and we have given very little consideration to the future. Our construction has been largely temporary, when safety and economy would suggest that we give the greater consideration to permanency. The annual fire expense, including the cost of fire protection, has reached in some years the enormous sum of \$600,000,000, with a death loss of 7,000 persons. This represents a tax of \$6 per capita, not including the loss of profits to the business man who has been burned out for time he is out of business. In dollars it exceeds the value of all the crops raised on the farms in Minnesota and Iowa last year, and is a loss greater in value than the entire 1908 wheat crop of the United States. It equals in value yearly the entire consumption of coal in our nation for all purposes. If you were to load cars enough with corn to fill every mile of railroad in Iowa, including all side tracks and spurs, and then burn it up, cars and all, it would not equal our annual fire expense. The annual fire loss in our country averages \$2.50 per capita, while that of all the European countries combined is but 33c. In the foreign countries there is an average of less than one fire per year to every 1,000 population, while here we have four and one-half fires per 1,000.

Natural conditions are conspiring to bring about a change, and the increasing cost of combustible building materials has caused us to look for something else, and, fortunately, at the same time, public attention has been called to the great waste by fire, and, therefore, efforts have been made to introduce and use fire-resisting building materials. To us is entrusted, very largely, the work of relieving our country from this needless burden. It is doubtless true that heretofore we have given too little thought to anything but the original cost of construction, but as we see the great waste resulting from our thoughtlessness, and, above all, when we have brought home to us the enormous loss of life and begin to realize that all

over our country we are endangering the lives of those most near and dear to us we are aroused. An active movement has been started to secure fireproof construction, especially in our public buildings. While this movement has been under way but a comparatively few years considerable progress has been made, and today there is scarcely a city of any size where there is not a strong sentiment in favor of fireproof construction for all public and semi-public buildings. Yet how little has been accomplished is shown from the fact that with some 12,000,000 buildings in this country there are only 8,000 which are even so-called fireproof, while, in all probability, 2,000 will cover the number which are actually fireproof. While, naturally, the largest proportion of our fires cause the destruction of residences, yet there is an average weekly burning of three theatres, three public halls, twelve churches, two hospitals, two asylums, two colleges, twenty-six hotels, three department stores, six apartment houses, two jails and 1,600 dwellings. We have but to refer to any of our daily papers to verify these statements. Within the last week I have noticed the following:

In Chicago, the complete destruction of the plant of the Kinley Manufacturing Company, with a loss of \$235,000, endangering the lives of 200 men and 30 women; the destruction of the McDowell Hall, St. John's College, Annapolis, Md.; a loss of \$300,000 at Columbus, Ohio, in the burning of the buildings of the Brunswick Bowling Company and the Tracy Wells Company; in St. Louis, a loss of \$100,000 in the fire of the Mulvihill Furniture Company; the complete destruction in Chicago of the warehouse of the Albert Dickinson Seed Company, entailing a loss of \$200,000 and serious injury to five firemen; in Milwaukee, fires entailing a loss of \$100,000 with a loss of life of five people; in Louisiana, the burning of a sugar warehouse with a loss of \$200,000; in Buffalo, a fire which caused a loss of \$300,000; \$150,000 fire destroying the butterine plant of Swift & Co., Chicago.

The loss of life in such fires as the Iroquois and Boyer-ton theatres, and the Collinswood public school, has touched the hearts of our people, while the great conflagrations like Baltimore, San Francisco and Chelsea have touched our purses, and the two influences have given a great impetus to a movement for safer and more permanent construction.



HOWARD H. GROSS, OF CHICAGO.
The Good Roads Expert.

The press, usually alert and active in all our great reforms, has taken up the cause, and is doing effective work, daily calling the attention of the public to the necessity for better construction, even going into details and furnishing information as to materials and general plans suitable for fireproof buildings. This agitation has accelerated the manufacture of building materials that are best calculated to form the greatest resistant to fire, increasing the demand for larger factories, improved methods and machinery, with a corresponding reduction in the manufacturing cost. This is most noticeable in the case of Portland cement and cement products, and more particularly in the rapid development of cement block, brick and reinforced concrete. All of these influences working together have made it possible now to construct an office, warehouse or business building which is practically fireproof at as low a cost as the construction in general use. There is no longer any excuse for building tinder boxes which are a menace to the safety of life and property. Most people have an idea that the cost of fireproof construction is so great as to prohibit its use in residences; but it is possible now, where experienced mechanics are obtainable, with the various fireproof materials at hand, to construct a non-inflammable residence at as low a cost as with lumber, and I predict a general adoption of such construction in the entire country. At present there is a distinct national movement, having for its object the conservation of our forests, and it has been started none too soon. From reliable data covering the annual lumber consumption and the present supply, after making liberal allowance for the growth of young timber, we learn that if the rate of increased consumption per capita which has obtained during the last ten years should continue our supply of timber would be entirely exhausted in less than twenty years. Undoubtedly the full realization of this condition is stimulating our efforts to utilize other building materials, and necessity is thus forcing a reformation which reason ought to have produced years ago. We have reached a point where something more substantial and definite than public agitation should be secured.

There should be a law in every state defining fireproof buildings, and providing that all public and semi-public

buildings should be of such construction. Our statutes are filled with laws enacted for the purpose of protecting property and life. We provide safety appliances in transportation and impose penalties to secure the enforcement of these laws; and we even go to the extent of prescribing our meat and drink. Nearly all of our states provide for fire escapes on hotels and all buildings where a large number of people are gathered. But this is only a medicine intended to relieve the disease, while we ought to go to the root of the matter and remove the cause, thus providing a complete preventative. It is criminal carelessness for us to confine our children in school buildings the interiors of which are so constructed as to invite fire, panic and disaster. We penalize the careless employer and by law enforce him to compensate the injured employee, while we, the public, are endangering the lives of hundreds of thousands by our negligence. The exteriors of most of our public buildings are of brick and stone, and by rebuilding the interiors can be made substantially safe. Brooklyn, with its staid, old German population, has taken the initiative by deciding a year ago that all school buildings must be fireproof. They have been remodeling all old buildings by replacing the wooden construction with reinforced concrete floors and ceilings, and fireproof partitions. The cost of rearranging the interiors of our school buildings would place no perceptible burden upon any community—all of which would be saved in a few years in insurance and repairs.

Gradually we should escape from this heavy fire tax, and within the next quarter of a century our statistics should show the lowest annual fire loss of any country in the world. The movement has been started, it has the support of some of the most influential and prominent men in the country, and I believe that we may confidently look forward to a time in the near future when the conditions will be completely reversed, and we will escape the onus of the great loss of life and property which is now so apparent. With the double incentive of increased business and profits, and the comfort and protection of the lives of our people, we should all become boosters in this great movement.

THE SMOKER.

Following the regular program a social smoker was given by the association to the members, the exhibitors, the Interstate Tile Association and the press. Fully five hundred were in attendance, and the occasion proved one of the most enjoyable events of the convention. Five hundred fine cigars went up in smoke while the affair was in progress.

Rock Products song books were distributed, containing all the popular choruses, but the crowd was too dry to sing.

President Roche started the ball rolling with a new story, and then introduced a Swedish dialect entertainer, who gave a burlesque imitation of a Swede minister, and recited an impromptu poem about the prominent members of the association. Vocal and instrumental music, dancing and other specialties completed the program, which was hugely enjoyed. No one was disappointed, and all left in a good humor.

Ralph O. Miracle was chairman of the entertainment committee, and he was ably assisted by L. V. Thayer, and it is largely due to them that the smoker proved to be such an enjoyable feature.

MORNING SESSION MARCH 4.

The annual business session was held at this meeting. Secretary J. C. Van Doorn made his report, which was adopted, as was the report of Treasurer J. M. Hazen. The association is in a healthy financial condition. Reports of committees were next read.

The resolution committee, composed of O. U. Miracle, Minneapolis, F. A. B. Patterson, Fairmont, Minn., A. H. Laughlin, Lisbon, N. D., L. L. Bingham, Esterville, Iowa, H. Jacobson, Fingal, N. D., and A. G. Peterson, Hankinson, N. D., offered resolutions heartily endorsing the tests of concrete and other building materials by the United States geological survey in its testing laboratories, especially of the various building materials. They further urged the necessity of Congress to provide adequate funds for the continuance of the tests. They passed resolutions thanking the St. Paul Commercial Club for the beautiful silver loving cup they donated to the association, to be given for the most artistic booth, and also the Minneapolis Commercial Club for their silver loving cup for the most effective booth, and also thanked the Minneapolis Commercial Club for housing the association, and for the kindness and courtesies extended to the members of the association while the guests of the city of Minneapolis; the Minneapolis Builders' Exchange for the kindness shown the association, and to Col. Frank T. Corrison and Lieut. G. W. Dulany of the Minnesota National Guard for the many courtesies extended in connection with the use of the Armory; to President Martin T. Roche for the creditable manner in which he discharged his official duties, and for all he has done for us and the industries with which we are identified; to Secretary J. C. Van Doorn for his careful and painstaking work, which has been in evidence throughout the year now closing, and to his able staff.

The following officers of the Northwestern Cement Products Association were elected at the annual business meeting. Martin T. Roche, of St. Paul, president, re-elected; J. C. Van Doorn, Minneapolis, secretary, re-elected; J. M. Hazen, Minneapolis, treasurer,

re-elected; Henry E. Murphy, Manitowoc, Wis.; Leo Stover, Watertown, S. D.; A. H. Laughlin, Lisbon, N. D., vice-presidents, re-elected, and L. V. Thayer, of Minneapolis, and William Hurst, of Glendive, Mont., elected vice-presidents, to succeed O. U. Miracle and C. A. P. Turner, of Minneapolis.

AFTERNOON SESSION, MARCH 4.

A general talk on concrete and concrete products was given by Richard L. Humphrey, which was the feature of the session.

Geo. Dieckmann, of Mason City, Iowa, chief chemist of the Northwestern States Portland Cement Company, attacked a certain statement made by an Iowa gentleman, upon the endurance of cement drain tile, recently made in the city of Des Moines. He proved by conclusive tests that his statements were erroneous.

Captain Freeman, of the United States government engineering office, in charge of construction of lock and dam work between Minneapolis and St. Paul, gave an interesting talk upon "Common Sense and Concrete."

City Engineer C. M. Thorpe, of Bozeman, Mont., delivered the following paper:

CONCRETE PAVEMENT AT BOZEMAN, MONT.

By C. M. THORPE.

Bozeman is a small city of about 10,000 population, situated in the famous Gallatin Valley, the "Egypt of America," surrounded by spurs of the Rocky Mountains.

The matter of improving our main street has been discussed for ten or fifteen years. Plans were made in 1893 for macadamizing the street, but the proposition was voted down. In 1907 the city council created an improvement district for the purpose of paving with creosoted wood blocks on a concrete foundation. This was objected to and defeated by the property owners, who objected to the cost and wished further time to investigate. A committee of property owners was then appointed to carry on investigations and report to the city council the kind of pavement they desired. These investigations were continued by the committee and city engineer until early in 1908, when the committee reported unanimously in favor of concrete pavement.

Plans and specifications were at once prepared and bids asked for. In preparing specifications it was thought best to ask each bidder to submit the details of construction with his bid, as it was claimed that a patent had been granted on concrete pavement. The bids were opened July 2, 1908, and a prominent construction company of Salt Lake City, Utah, were found to be the lowest bidders and the contract was awarded to them at the following prices:

For excavation, \$60 per cubic yard; for gravel fill, \$1.25 per cubic yard; for concrete pavement (not including excavation or gravel fill), \$1.95 per square yard.

The principal points in the construction of the pavement are these: The street was excavated and rolled with a ten-ton roller; three inches of fine gravel was then placed on the rolled surface where so required by the engineer; where the foundation was found to be gravelly no gravel fill was required. The forms were then set. These consisted of 2x7" plank, set with the top to grade and running across the street from curb to curb where there was no street railway track. Along the street railway track one side was constructed at a time. These forms were set 10' apart and steel headers set 10' apart between the forms, making blocks 10' square. The foundation was then gauged to 7" below grade and 5 1/2" of concrete deposited in every alternate space and the same well tamped. The concrete consisted of one part Portland cement and six parts natural gravel; where the sand was found to be in the right proportion the gravel was limited to 2" in diameter.

Before the concrete was set the top, or finish coat, 1 1/2" thick, was placed thereon and troweled into the concrete. This top coat consisted of one part cement, one part crushed boulders or pea gravel and one part sand, the crushed stone or pea gravel being limited to 1/2" diameter and the sand being coarse and as clean as could be obtained.

The wearing surface was marked off into squares 4x8" with grooves about 1/4" deep, made by using a plane, one edge of which was shod with an iron from the shape of the groove. This marker was used by two men and pounded into the wet concrete with wooden mallets to make the groove. The surface was then brushed with a brush and left quite rough. The grooves, 4" apart, run across the street at right angles to the curb, and the grooves, 8" apart, are parallel with the curbs. It was allowed three weeks for setting before being opened for travel, during which time it was covered with sand and kept wet. Expansion joints were run across the street every 100' and also along the curbs. These were filled with asphalt compound. The concrete and top coat was all mixed with two Smith mixers and wheeled into place in wheelbarrows.

When the first half of the pavement was opened for travel it had a more severe test than it will ever have again, as the travel was confined to one track and the gravel for use on the other half of the pavement was hauled over it. Still it showed hardly any wear, notwithstanding the fact that it was only three weeks old. The length of the street paved was 3,495 feet, amounting to 25,781 square yards.

The total cost of the pavement, including all items, was \$228, the original estimate having been \$240 per square yard. The brand of cement used was Western States, costing about \$2.40 per barrel. The cost of sand and gravel was \$2 and \$1.25 respectively, and for labor \$2.50 per day of eight hours.

I wish to say that we are more than pleased with the pavement. It is not slippery and no more noisy than brick; it is easily cleaned by washing with a hose from the fire hydrants, and, with the concrete curbs and sidewalks, makes a fine looking street. One thing that helped the committee to decide in favor of concrete pavement was the fact that we had several concrete crosswalks constructed four or five years ago in practically the same manner as the pavement, and, as these showed little or no wear, the committee were of the opinion that the smooth pavement would not be submitted to the hard usage which a crosswalk, with soft mud on each side, might receive.

We know that there is nothing about this pavement to decay, and it will be as durable as the material put into it. I believe that the wearing surface great care should be taken to select hard, durable rock and I believe the crushed rock is better than pea gravel. The sand should be carefully selected, hard and coarse, and enough cement to thoroughly fill the voids.

I am inclined to think that if the grooving run at angle of 45 degrees with the curb it might prevent the possibility of wearing into ruts which might be started by the grooves running parallel with the curb.

The last paper of the afternoon session was that of Henry E. Murphy, of Manitowoc, Wis., one of the vice-presidents of the association. Mr. Murphy had endeared himself to every one during the progress of the convention, and the interest in his paper was very keen.

THE BUSINESS END OF BLOCKMAKING.

By H. E. MURPHY.

I put quality first because without it no business can be built on a firm and lasting foundation. Quality is the keystone in the arch of permanent success. Quality is the vital force which stimulates the growth of any business and is absolutely essential to the development of this industry where we have not only to deal with the natural conservatism of fair-minded builders, but must meet the arguments and overcome the objections, hatched in the fertile brains of the manufacturers of the materials we are so rapidly displacing. The principal advantage which concrete possesses over other building materials is permanence. We all lay great stress on the fact that it acquires strength with age, but this one great argument falls flat when quality is neglected. Cement rightly used is the best building material of the age, but when abused it is the poorest, because it is impossible to remedy a defect after your product has left your hands and has been embodied in a structure.

The cement block maker must always bear in mind the fact that the field of his activities is limited. His market is more or less local and his reputation, whether good or bad, is quickly established among the people with whom he must do business. And any one who is unfortunate enough to suffer a failure through a short-sighted "penny-wise pound-foolish" neglect of quality had best abandon the business in that locality, for he will find that he has fallen to the bottom of a hill whose ascent is rough and steep and stony. There is, however, one point which has not been given the prominence which it deserves—I refer to uniformity. Establish a standard and maintain it. Select your aggregates carefully, seeing that they run as nearly uniform as possible. Then see that every block is made of the proper proportions. Keep accurate tab on each day's run, so that you can know that every block made is as nearly like its brother as possible.

Our methods of accomplishing this result are these: We use a one to four mixture in all ordinary blocks. When we start to run on any stock size we measure carefully ten batches (mixing one sack at a time) getting the proportions as nearly one to four as practically possible. Then, dividing by ten the number of blocks made from these ten batches, we have our unit or the number of blocks to be made from each sack of cement. We take ten batches, as this enables us to strike a fair average. Our foreman is then required to see that his results are uniform. By a little care we have succeeded in reducing our average daily variation to less than two blocks. This is rendered easier if you put one man in charge of the mixing and drill him in loading the wheelbarrows uniformly. It is well at intervals to check up the results at different hours of the day, so as to prevent the men from bringing their day's work up to the average by doctoring the last few batches of the day. Keep a record of each day's work so that you can compare them from time to time.

Then in tamping insist on uniformity. Do not allow a block to go through that is streaked or unevenly tamped. Watch the platform from which the concrete is shoveled into the molds to see that the edges are kept clean, so that none is allowed to become partially set before it goes into the mold. If you neglect this you will find streaked blocks in your stock piles which you are at a loss to account for and which may result in spoiling a sale if they come to the eye of a prospective purchaser.

And right here I want to emphasize the importance of one item, which I think that some of us are liable to overlook—that is the character and organization of the men you employ. You cannot expect to obtain uniformly good results with a constantly shifting crew of men. Select good men by a process of elimination and then try to hold them by paying good wages and impressing upon them that if they stay with you you will protect them and look out for their interests. Show a close interest in their work and be as quick to approve good work as you are to criticize faulty work. Then place these men in the charge of a foreman on whom you can depend and let them know they are directly responsible to their foreman as he is to you.

In meeting competition it is necessary to impress your trade with the idea that you are running a well established business, systematized along certain well defined lines. Make your foreman responsible for the condition of your plant as well as for results. Have him keep your stock piled in even and regular rows in definite order. Have him keep your plant neat and shipshape, with a place for everything and everything in its place. Good housekeeping is an important item in the welfare of any factory. Do not feel that you are incurring an unnecessary expense if you have a man on the pay-roll who is not constantly engaged in the actual making of blocks.

Have your foreman keep a record of each day's work and everything in connection with the work, including time of the men, material received, material used, blocks made and blocks sent out. We use a combination stock and report sheet which enables us to keep close tab not only on the cost of goods made but also a record of stock on hand. This sheet is simple, but it would be difficult to describe so as to give you any definite idea of its workings. We have found this sheet to be of practical benefit to us in three ways, keeping cost, keeping stock and raising the efficiency of the men.

Keeping a daily record of the stock you have on hand will enable you to figure on work more intelligently, as you can tell by glancing at this sheet just what you have to sell. We have found that this sheet raised the efficiency of the men, because a crew of men will work harder when they know that a record of their work is kept and each day's work compared. Your foreman will

feel stimulated to consistently better efforts when he knows that you can tell at a glance just what he has been doing. It will also enable you to determine from actual observation just what results you can expect from your crew and permit you to be absent from the factory and still feel that on your return you can tell whether or not the time of your men has been profitably employed.

This record enables you to keep cost on your work. This is an important consideration and absolutely essential to a profitable business. From the daily record you get the two most important items which enter into cost: i. e., productive labor and material. Besides these you should also consider non-productive labor, such as salaried men not actually engaged in production, operating and selling expense. Under operating expense include depreciation of your plant and equipment, interest on the investment, loss through culls, office expense, and all other items of expense not chargeable to productive labor and material.

Keeping cost is necessary to the profitable manufacture of cement blocks, for unless you keep a careful record of these items you will not know how much your products cost and can only guess at the right price at which to sell them. You may think that by counting the number of blocks made in a few batches and establishing roughly the amount of labor you can arrive at a pretty good idea of the cost of your blocks; but if your competition is hard you may find yourself selling at a loss, where you think you are making at least a small amount of profit.

Securing trade is the next consideration after the making of uniformly good blocks and the determining of their cost. I have a number of theories on this point, but can perhaps best give you my ideas by telling you the methods we employ. We have in the past three years worked up a very nice business in cement block silos, and as this market has been opened up solely through our own efforts the methods employed may be of interest; so I shall confine myself to a discussion of the selling of silos, although the principles apply of course to all forms of blocks.

We watched our first silos quite carefully and when they had passed through one winter and had proven a practical success we secured letters from these men, giving their opinions of our silo. We also had photographs taken showing different views of the silos. These letters and photos we distributed through various advertising mediums, such as circulars, newspapers, county fair premium books, etc. We also erected sections of silo walls at county fairs. Another good medium for reaching the farmer is the farmers' institute. We attended these, meeting the farmers, distributing circulars and taking part in the discussion on silos.

One sale leads to another, and by getting out and meeting the farmers personally you will get in touch with a great deal of business which you cannot possibly reach otherwise. We also found that getting the views and experiences of so many different farmers we soon acquired a pretty fair general knowledge of the silo question, learning the good points as well as the defects of the materials we were competing with. And this brings out the value of turning your factory over to a good foreman and systematizing your work so that you can go out and look for business. The man that is tied to his factory will find that his competitors are beating him in the race for business. It is the direct appeal which gets the business and the personal equation is an important factor in securing trade.

In selling goods I think there are a few important points which should not be overlooked. First, know your product—familiarize yourself with every detail of its manufacture and use. Then have confidence in it—here is where you will realize the value of uniform good quality. If you know in your heart that your blocks are uniformly well made you can stand before any man and look him in the eye and talk blocks to him until he gives you his order in self-defense.

The most important part of a sale is the price. Do not cut prices unless unusual conditions warrant it. Put a fair price on your blocks and then maintain it. Be firm on this point and your customers will secretly respect you more than if you allow them to dictate the price at which you shall sell your product. Another point we insist on is a contract. Experience has shown us that it is good policy to draw up a simple form of contract for every deal. We use a form of proposal and acceptance. The proposal sets forth just what we agree to furnish, the price, time of shipment or delivery, and terms of payment, with the words "This proposal, together with the acceptance hereof, shall constitute a good and binding contract of sale for the above described material," followed by our signatures. Under this we have the words "I hereby accept the above proposition," followed by lines for the signature and date of signing. The advantages of a contract are obvious. It is a statement of the obligation which both parties assume and is a record which will prove valuable in case of any future dispute.

To sum up on this point—go after business in person. Stick to the truth and fulfill your promises. Satisfied customers are your most valuable asset. Know your goods and have confidence in them. Use common sense and practice self control and patience, and be firm both as to price and contract.

Most of our silos are sold for cash or on short time, although occasionally we have to extend the time of payment over harvest time. We have found that a large percentage of farmers will plead poverty and ask for time. We always agree to grant them accommodation, but say we allow a discount for cash. In more than 75 per cent of our deals the discount does the business and we receive our money promptly.

CLOSING SESSION, MARCH 4.

A. H. Laughlin, Lisbon, N. D., spoke upon the progress of building blocks, the construction tending to better blocks and more beautiful architecture.

W. T. Sharp, of Moore, Mont., told of experiments with the curing of blocks; that while time curing was essential, steam curing was the best and quickest.

L. L. Bingham, of Estherville, Iowa, president of the Interstate Cement Tile Manufacturers' Association, was called upon, and made an impromptu talk on cement drain tiles. A paper on "The Possibilities of Concrete," by George C. Walters, of Atlanta, was read to the convention, Mr. Walters being ill and unable to be present in person.

A joint meeting of the Northwestern Cement Products Association and the Interstate Cement Tile Manufacturers' Association was held at the conclusion of the reading of the papers.

THE EXHIBIT FEATURE.

The main hall of the Armory was utilized for the exhibit feature. It is admirably adapted for the purpose, being large and well lighted. Every space on the main floor was occupied and one of the exhibitors was forced to go in the gallery for lack of room on the lower floor.

While each exhibitor arranged his own display and each presented a distinctive appearance, there was still a uniformity which was pleasing. It is largely a matter of taste, as to whether too much regularity does not detract, quite as much as not enough.

The color scheme was carried out in most of the exhibits, green, red and white seeming to be the general favorites. The hall was gaily festooned with bunting and American flags and presented a beautiful appearance.

A band of twenty pieces was on hand during the afternoon and evening and rendered a delightful program of popular airs.

The pathway leading from Hennepin Avenue to the Armory was lit up each night with electric lights, and a big electric sign was displayed on the corner.

The attendance exceeded the expectations of the management, as there was always a good crowd in the hall. The last two nights the crowd was so great that it was almost impossible to move among the exhibits.

The exhibitors were very well pleased with the results of the show.

ROCK PRODUCTS occupied booth 82 and presented each visitor with a daily paper during each day of the show, detailing the happenings of the convention and the exhibit feature. ROCK PRODUCTS also handled the mail during the show, which was a convenience for Uncle Sam as well as the exhibitors.

The Alpena Portland Cement Company had one of the most popular booths in the hall. Martin T. Roche, the northwestern sales manager, was in charge, assisted by Misses Nellie Casey, Lillie Boerner and Agnes Doyle. They had a system of registration and tagging, which made a hit with everybody.

The American Steel and Wire Company, of Chicago, had one of the largest and finest exhibits in the hall. They showed their triangle mesh reinforcement and photographs of work in which it has been used. H. S. Doyle was in charge of the exhibit and took great pleasure in explaining its merits.

Charles Bradley, of Rock Rapids, Iowa, was on hand with his winning smile to tell the visitors all about the Anchor Concrete Block Machine. Mr. Bradley had a machine in operation and gave a working demonstration and he sold quite a number of machines, which is the best evidence that the concrete worker appreciates the continuous air space block.

The Anderson Manufacturing Company, of Moorhead, Minn., exhibited the "Magic Tamping," a labor-saving device which will greatly facilitate the block maker in his tamping. To properly and evenly tamp a block is half of the battle. This machine can be operated with one horse power. It occupies no floor space, as it hangs on the ceiling and can be swung to any one of the molds within its radius. It is perfectly balanced and can be operated by a boy. Its great advantage is that it tamps the last block the same as the first. George A. Anderson, the inventor, was on hand demonstrating the device, and made quite a number of sales.

The Atlas Portland Cement Company had one of the most attractive exhibits in the hall. It was practically the same as that which made such a hit at both the Cleveland and Chicago shows. Old Atlas, as usual, was the center of attraction. Those in charge were Edward D. Boyer, F. C. Bailey, Walter Smith, Howard Van R. Palmer and D. H. McFarland.

The Chicago Portland Cement Company, manufacturers of the well-known Chicago AA brand, had one of the handsomest exhibits in the hall. The display was the same as that shown in Chicago and was from the studio of Theodore A. Rowley, the famous Chicago artist. Among those in charge were Norman D. Fraser, J. U. C. McDaniel and G. S. Welch.

The Electrical Cement Post Company had the Lake City cement drain tile machine and the Lake City Queen concrete mixer. Both machines are recognized as among the best on the market. H. A. Low was in charge, assisted by A. L. West, the northwestern representative.

Fowler & Pay, of Mankato, Minn., had a very attractive booth. They showed sections of wall finished in different styles. Brown lime and cement was used. They also displayed Austin bricklayers' cement, crushed stone, building stone and the Majestic coal chute. B. Frank Pay, S. K. Fowler, E. H. Bassett, H. Cooper and C. H. Wilson were in charge.

The Hudson Manufacturing Company, of Hudson, Ind., has a display of molds for making concrete tile and sewer pipe, shingle machines, block machines and brick machines. From the amount of interest displayed by the visitors and the number of sales made, we judge that this company was well satisfied with the results of the show.

The George W. Jackson Company, of Chicago, had an elaborate display of various styles of concrete construction, including a concrete house and a section of a tunnel. Many interesting photographs of work were shown. The display was in charge of M. W. Cluxton, manager of steel appliance department; James Norton, superintendent concrete construction; and P. S. Walsh, traveling representative.

The McElroy Post and Pole Company, of Cedar Rapids, Iowa, exhibited their fence post mold, automatic post machinery, continuous mixers and the A. C. gas engine. They also showed the McElroy continuous mixer, probably the cheapest practical mixer on the market today. This machine will develop five yards per hour with power, or two to three yards with hand power. This machine has only recently been placed on the market. Mr. McElroy was in charge of the exhibit and sold quite a number of machines.

The Marquette Portland Cement Company showed raw and ground material and the finished product in an attractively arranged booth. They presented to visitors a beautiful picture of the People's Gas Light and Coke Company Building in Chicago, in which 25,000 barrels of Marquette cement was used, and also a picture of the Hotel La Salle, Chicago, in which another 25,000 barrels was used. William Dickinson, the general sales manager, was on hand, assisted by Gold Williams and J. J. Kehoe.

N. J. Morehouse, of Waterloo, Iowa, had a big display of concrete machinery of various kinds. P. B. Miles' latest block machine, the Oliver Automatic, was shown in operation and also the Coltrin Concrete Mixer, generally recognized as one of the best mixers on the market today. N. J. Morehouse was in charge of the display. Miss Laura Grace Ackley, who has made many friends at the various shows which she has attended, was Mr. Morehouse's assistant.

The Miracle Pressed Stone Company had a very elaborate display, occupying more floor space than any other exhibit. Everything needed in a concrete plant was shown in operation and the display was interesting and instructive. O. U. and R. O. Miracle were in charge, assisted by C. D. Russell, George H. Delter, J. Walter Pope, B. R. Smith, G. M. Davis, Ben Umbright, C. W. Bidwell, C. J. Foster, G. W. Bidwell, W. G. Jenkins, Miss McDaniel and Miss Mirshore.

The Northwestern States Portland Cement Company had a very popular booth, the feature of which was a stereopticon, showing views of their plant at Mason City, Iowa, which is one of the newest and finest plants in the West. During the show the following gentlemen were there to greet their many friends in the trade: H. B. Hasbrouck, general sales manager; George Dieckmann, chief chemist, and recognized as one of the brightest minds in the industry; J. P. Lynch, D. B. Holley, M. K. Sawyer and Harold Fletcher. A. L. McCourtie, who is Mr. Cowham's right hand bower, was also on hand for a while.

The Peerless Brick Machine Company, of Minneapolis, again proved that their new tamping device which they have added to their machine this year puts them in a class all by themselves. A one-man cement brick machine which actually turns out 12,000 perfect brick in ten hours is such an important factor in the business that no one who sees it can but be impressed with the fact that it will revolutionize the cement brick making business. President L. V. Thayer was on hand and so was Jack Palmer, both of whom gave practical demonstrations.

The Ricketson Mineral Paint Works, of Milwaukee, Wis., had an interesting display of their well-known line of mineral paints. Edward Bogk, the president of the company, was in charge. Visitors were tagged with a cardboard barrel reading, "Roll Along."

The St. Paul Cement Machinery Company, of St. Paul, exhibited the Ferguson drain tile machine in operation. J. F. Piffner and G. E. Piffner were in charge. Albert Ferguson, the inventor, had charge of the demonstration.

The St. Paul Ditcher and Carrier Company showed photographs of their machine in operation in the booth which was in charge of Walter B. Kelley, assisted by W. F. Guiss. The machine itself was too large to bring into the hall and attracted considerable attention standing outside the Armory.

The Sandusky Portland Cement Company had an exhibit, the feature of which is a concrete boat floating in a concrete tank. This is the best evidence of the wonderful waterproof qualities of their Medusa compound. Beautiful plaques of Medusa White were also shown. The exhibit was in charge of L. B. Stewart, Iowa representative, and E. L. MacMullin, the Wisconsin representative.

The Universal Portland Cement Company's exhibit was as usual one of the handsomest in the entire hall. The pergola effect with handsome decorations was the feature. Among those present were: J. C. Van Doorn, northwestern sales manager; J. P. Beck, advertising manager; A. E. Robinson, Walter Berry, J. H. Libberton, F. L. Hoppin, E. J. Dowdall, C. W. Boynton, E. S. McGowan, A. C. Wilby, Messrs. McFarland, Kypke, and Misses Helen Rohrbach, Leah Rohrbach, Daphne Murray, Marguerite Hathaway and Mrs. C. Schwarm.

C. K. Williams & Company, of Easton, Pa., the well-known manufacturers of coloring for mortar and concrete, was represented at the show by L. A. Moore & Company, of Minnesota Transfer, Minn. L. A. Moore and H. H. Achuff were on hand taking down the orders.

Lack of space prevents a full description of all the exhibits. Others represented were:

- Advance Mixer Company.
- American Hoist and Derrick Company, St. Paul, Minn.
- Ashland Steel Range and Manufacturing Company, Ashland, O.
- Louis Auer & Son, Milwaukee, Wis.
- Ballou Manufacturing Company, Belding, Mich.
- C. G. Boechert, Minneapolis, Minn.
- Cadwell & Brown Company, Minneapolis, Minn.
- Carlen Economy Brick Machine Company, Oskaloosa, Ia.
- Cement Machinery Company, Jackson, Mich.
- Cement Tile Machinery Company, Waterloo, Ia.
- Chicago Concrete Machinery Company.
- Chamberlain Machine Works, Waterloo, Ia.
- Nels Erickson, Minneapolis, Minn.
- Fairbanks, Morse & Co., St. Paul, Minn.
- The Hecla Company, Bay City, Mich.
- Hayden Automatic Block Machine Company, Columbus, O.
- Charles B. Hurst Company, Chillicothe, O.
- Ideal Concrete Machinery Company, South Bend, Ind.
- Interstate Investment and Development Company, Charles City, Ia.
- Joliet Concrete Machinery Company, Joliet, Ill.
- Kerlin Automatic Post Machine Company, Delphi, Ind.
- Kettle River Quarries Company, Minneapolis, Minn.
- The Knickerbocker Company, Jackson, Mich.
- Kramer Automatic Tamping Company, Peoria, Ill.
- Landers-Morrison-Christenson Company, Minneapolis, Minn.
- Lansing Wheelbarrow Company, Lansing, Mich.
- Mankato Cement Works, Mankato, Minn.
- Menominee Hydraulic Pressed Brick Company, Minneapolis, Minn.
- Miles Manufacturing Company, Jackson, Mich.
- National Stone Manufacturing Company, Minneapolis, Minn.
- H. K. Zuppinger, Municipal Engineering and Construction Company, Minneapolis, Minn.
- National Insulate Company, Aurora, Ill.
- S. Overmire, Minneapolis, Minn.
- Nelson Bros. Paving and Construction Company, Minneapolis, Minn.
- Northwestern Expanded Metal Company, Chicago, Ill.
- Northwestern Lime Company, St. Paul, Minn.
- Rapid Cement Machine Company, Minneapolis, Minn.
- T. L. Smith, Milwaukee, Wis.
- Sommers Bros. Manufacturing Company, Urbana, Ill.
- Twin City Equipment Company, Minneapolis, Minn.
- St. Paul Cement Works, St. Paul, Minn.
- Waterloo Cement Machinery Corporation, Waterloo, Ia.
- Western Portland Cement Company, Yankton, S. D.
- Papke & Kuehner, Minneapolis, Minn.
- Power Equipment Company, Minneapolis, Minn.
- O. F. Lymons, Minneapolis, Minn.
- St. Louis Sampling and Testing Works, St. Louis, Mo.
- Smalley & Trulin, Panama, Ia.
- Shope Brick Machine Company.
- Puffer-Hubbard Company, Minneapolis, Minn.
- E. F. Wege, La Crosse, Wis.

NOTES.

The Trophy Committee recommended that one of the silver cups, presented by the St. Paul Commercial Club, be awarded to the National Stone Company, of Minneapolis, for the most artistic booth at the show, and the association loving cup to the Miracle Pressed Stone Company, of St. Paul, for the most effective booth. Honorable mention for both design and effectiveness was given to the booth of the Northwestern Expanded Metal Company, of Chicago. The members of the committee were: Edward D. Boyer,

(Continued on page 63.)

ALL THAT THE NAME IMPLIES

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PORTLAND CEMENT.

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B. T. FENDALL, City Eng., Baltimore.

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is thoroughly uniform in color and strength, perfectly sound, absolutely regular in setting qualities and every barrel conforms rigidly to Standard and Government specifications.

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Economical packing and smallest percentage of breakage
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Perfect Bricklaying Mortar

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Works cool and easy under the trowel.

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Gets harder with age, and finally becomes harder than the brick or stone it binds together.

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It is Uniform

Being a natural product, its chemical combination never changes.

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WE GUARANTEE EVERY BAG and EVERY BARREL

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THE PORTLAND CEMENT INDUSTRY FROM A FINANCIAL STANDPOINT

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Official Organ, ROCK PRODUCTS

Remarkable Activity.

Spring is here. From every section come reports of renewed activity in building lines. Actual operations have commenced in many parts of the country and with the first few bright days there will come a rush. In New York there is more work by five times to what there was the same time last year, and were it not for the fact that there are big stocks of supplies on hand and many men idle, there would actually be danger of a shortage of both. In Chicago there is also danger of a shortage of labor and well posted men say that if there is no strike to mar the year, Chicago will break every previous record for building operations. Contractors and builders everywhere have been impatiently awaiting the first signs of spring in order to get busy, and if there is anybody who has not had the foresight to get his order booked it behooves him to get busy now.

There is every indication that from now on this country will see such a revival in building operations as was never known before. All previous records will be broken for the next few years. The stagnation is over and the real prosperity is here. With the commencement of building operations everything else will take on a brighter look.

Every available man even in the smaller cities can get work in the building line.

In looking over the plans and specifications there is one feature which merits attention, and that is that the buildings are being built fireproof in many instances but not in as great proportion as one might suppose. There are a great number of frame houses contemplated and this in spite of the fact that people know them to be fire traps. When concrete construction costs so little more it is strange that everyone does not use it. The public is slow to accept anything new and the architect, contractor and builder doesn't care as long as he makes the money.

Relation of the Retailer and the Manufacturer.

An Irish lady was once asked what, if any, relation she might be to a gentleman having the same surname. She rather indignantly replied. "Sure, none at all; do you think I would marry with a man that was kin to me? And Pat Quinn is me husband, to be sure."

This is clearly a case of the distinction of terms and the point of view, and the same thought applies in connection with the relationship between the manufacturer of materials and the retailer. It is in fact and should always be considered most intimate, and there is invariably a mistake somewhere when any other point of view is assumed temporarily for any reason whatsoever.

In this intimate relation or union of interests there exists more than a contract, although nothing of the

nature of a contract may ever have been entered into. The underlying principle of sound business confidence is involved in this relationship. The retailer has certain definite functions to fulfill, in order to make his market alike profitable for himself and the manufacturers who produce his goods, always with an eye single to the propagation of new business by judicious and wholesome boosting with the right price for each and every commodity handled, and by providing the necessary equipment of teams to accommodate deliveries. It is up to the retailer to promote the sale of his wares by judicious suggestions to new customers, and in order to do this intelligently, to study the new uses of materials as fast as they are developed in the best channels, for information of this character.

The time is long past when the man who furnishes building materials in any progressive community can spend his days sitting upon a section of sewer pipe whittling a piece of hemlock lath. He can no longer be a listless idler, lying in wait lest some neighboring farmer comes along to buy a barrel of lime for whitewash in the springtime in order to work off some air-slaked stuff that has been in the shed since last fall. He must be a student, active and alert, with all his goods in proper receptacles, and always the best authority in the town upon all the various uses and applications of the supplies he furnishes. In a town where there are two retailers, the one of the latter type will eventually make more money than his listless competitor, no matter how it may seem at the outset.

The manufacturer also has certain reciprocal functions to keep the best conditions of their relationship intact. The dependable quality of his goods must be maintained. The constant recognition of this alliance with the retailer must be observed, and his promotion campaign should augment and supplement that of his ally without antagonizing or defeating it. That confidence which is such a valuable asset in the commercial world must be maintained by the manufacturer inspiring that sentiment in his allies by making himself worthy of their confidence first. The initiative is always up to the producer, and if he is guilty of flirtations on every hand, there is small excuse for him to complain if the profitable relationship with the retailer is broken up.

Mutual confidence and honest practices and intentions must be maintained to perpetuate profitable alliances between the retailer and the manufacturer. It is necessary for the individuals to be well acquainted with one another and to have a heart-to-heart talk occasionally. The old 'homely virtues of truth and honesty in the final analysis have more to do with confidence than anything else. No matter whether it is a business relationship between vast corporations, or between two individuals, or between one man and all mankind. The lack of confidence in this business community about one year ago paralyzed the building activity of the country for a time, and we are now all hoping that the expected revival will be well founded upon the solid foundation of confidence in business, which really means confidence in the integrity of one another.

The eternal question of price disturbs our own commercial fabric more than any other because it is necessary to maintain greater margins of gain upon the normal basis of conducting a business enterprise while the actual profit remains about the same as in other countries where the value of the personality of the citizen is less than our own. The high quotation, when it is too high, only temporarily wins a fictitious profit which is soon reabsorbed by inevitable reaction. This applies to every establishment that is continuously in business. There is no relief in moving goods at the extreme low price, when it gets too low. That is a phase of bankruptcy, and eats like a worm feeding upon the capital account. But there is always a right price, which contains the proper healthful gain and correct scale of profits to each branch of human effort and vested capital engaged in a long series of transactions based upon this much-to-be-desired factor to the equation of business confidence.

The cooperation of the associations of manufacturers with the associations of retailers is not far distant. The brightest geniuses and the ablest minds of the two parties to the alliance between manufacturers and retailers will come together and work out the right price upon a broader plane of fairness, both to themselves and the consumer, to make more business—more profitable business—and safer investments for all concerned. This will mean a development of commercialism that the world has not yet seen. Our country is great enough to accomplish even this, and the men of the building material business are large enough of mind to do it, and they have sufficient initiative to undertake this higher ideal of reciprocity, if you please, because it will prove the most profitable way of doing business. In this great progressive step of the near future the men who compose the building material interests are in the lead, and this posey is meant for every buttonhole that it fits, to encourage the germ that is now working beneath.

Economical Storage for Heavy Goods.

Continued From Page 31.

spects resembles the New York subway, and with driveways through it sufficiently wide to permit two teams with heavily loaded wagons to pass with plenty of room on either side. Specially designed adjustable loading chutes project from each of the gravity bins into the tunnel at a proper height for the loading of wagons, and are so arranged that all coal passes over a screen through which the slack falls into special bins. These screens are so arranged that they may be removed and others with larger or smaller meshes inserted, which will make it possible to load thoroughly screened coal of the size ordered.

The driveway through the tunnel will be paved with Colorado sandstone. The teams with empty wagons will enter the tunnel from the west end, load and pull out at the east end up an inclined driveway in the shape of the letter "S" to a double scale at the top, where the weighing will be done by a competent weighmaster.

The company's plans contemplate, among the many other decided improvements in the interest of economy, doing away with the once indispensable "shovel brigade." A standard gauge railroad track extends through the building from the west, secured to heavy steel girders eight feet above the top of the tunnel, from which it will be possible to unload, in approximately five minutes, a train of nine 36-foot hopper bottom cars of coal. The time consumed in loading a wagon in the tunnel beneath will be about two minutes.



ABOVE THE COAL POCKETS DURING CONSTRUCTION.

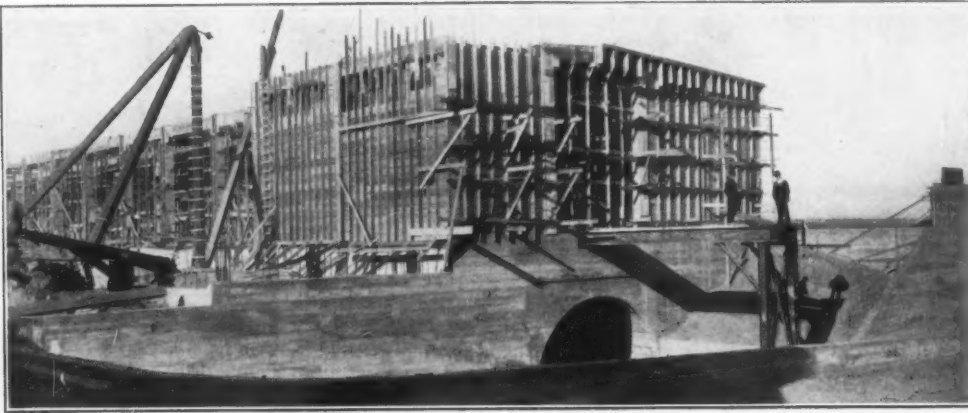
The south part of the main building, with 10,500 square feet of floor space, will be used for the storage of package materials, cement, lime, plaster and mortar color, and will be equipped with gravity carriers and other labor-saving devices. The capacity of this building is 20,000 barrels, which is equivalent to 200 carloads.

The yard office building, with its commodious annex for yard employees and drivers, is built of red face brick from the Kansas Gas Belt and the exterior is artistically paneled with a rough coat of cement plaster. The roof is made of red Spanish tiles.

This building heated by an up-to-date hotwater plant, aside from being a combination of convenience and architectural beauty, is an innovation in the line of advertising, showing in a very attractive way the possibilities of this type of construction.

To prepare the site for laying of track, foundation of warehouse and office, 190,000 cubic yards of earth was moved, and approximately 10,000 barrels of Portland cement, 300 cars of crushed stone, 200 cars of sand, 200 tons of reinforcing steel and 150 tons of structural steel were used in the construction of the buildings and retaining walls of the inclined approaches.

To handle the present business of the company, thirty teams are kept busy from seven o'clock in the morning until six in the evening, and a conservative estimate of the delivery equipment the operation of the new yard requires is thirty-five additional teams and wagons. Plans for a stable are now being prepared and it will be sufficiently large to accommodate seventy-five horses. A special feature will be the



TUNNELS OF C. W. HULL CO.'S NEW WAREHOUSE IN WHICH WAGONS WILL BE LOADED.

sanitary arrangement of stalls to insure cleanliness and lessen the labor necessary to keep them in proper condition. Here, as elsewhere, the purpose of the company is to get the best service with the least amount of work.

The main office of the company is located in the heart of Omaha's retail district and operations at its various yards are directed over private telephone wires. An inter-communicating system of telephones was installed several years ago, which makes it possible to place orders promptly and without interruption. What is true of any large business in this respect applies to the C. W. Hull Company.

This is truly the age of advancement and no concern in Omaha has striven harder to keep abreast of the times than has the C. W. Hull Company. The thought uppermost in the mind of the management has always been to lead and let others follow; to let others glean where it has reaped.

ROCK PRODUCTS has watched with increasing interest the progress of this enthusiastic exponent of modern methods and predicts that its new warehouse will be a decided success and a credit to the Gate City of the West.

Prominent Retailer in Egypt.

SOMEWHERE UP THE NILE, Feb. 8, 1909.

Dear ROCK PRODUCTS:

I believe I promised to tell a breathless and expectant world, after an expert investigation, whether the Pyramids of Egypt were constructed of blocks of stone, or whether they were molded in place out of cement and sand; and I have merely to say that, although I was frankly prejudiced in favor of the latter theory, I find the stone wins.

To even so poor a judge as I admit being, a mere glance is sufficient to decide the point. The great quarries from which the bulk of the stone was obtained are less than ten miles distant, and show the identity of the material.

Neither was the construction of the Pyramids any such amazing piece of engineering as we have been led to believe. The blocks of stone of which they are composed are not huge monoliths of incredible size and weight, but are of very ordinary, though irregular, dimensions. I saw very few over five feet each way, and most of them were much smaller. The outer covering of granite slabs has nearly all disappeared, but of the few remaining around the lower courses I saw none as large as the caps and lintels of the Marshall Field wholesale store.

Of course the Pyramid of Cheops, on account of its mere bigness, is an impressive sight even at first, and, like Niagara Falls, its magnitude grows upon one each time it is seen, but to say that it would be impossible for modern builders to construct another like it is mere nonsense! It would be a rankly foolish waste of time and money to construct such a tomb. That is all! Any American builder could construct a much bigger and more perfect one if he could find an "easy mark" rich enough to pay for it.

Cheops is about 450 feet on each side and the same in height, and the climb up its sides of irregular steps is not very difficult, provided the climber is built along the architectural lines of Gordon Willis or Peter Martin, but, my dear Defebaugh, you and I would enjoy ourselves better sitting at a round table at the base of the Pyramid, with a bottle of Anheuser-Busch between us and betting on which of the other fellows would get to the top first.

And, by the way, for O. F. Perry's information, I got out some very large sheets of paper, and sharpened my pencil, and succeeded in figuring out that if he converted the Pyramid of Cheops into lime at the rate of 25,000 bushels a day for 300 days in the year, it would last him 42 years, 9 months, 19 days and 7 hours, at the end of which time he would be thirsty enough to go out and take a drink, even though he does come from Maine.

Alongside of one of the group of Pyramids is the famous Sphinx, and anyone can have it who wants it, for all I care. One of his eyes is gouged out, his nose is smashed in, and he looks as generally knocked out as John L. Sullivan did when he met Jim Corbett. The Sphinx is an old fraud, and I would send you a snapshot picture of him, but unfortunately I am in the picture sitting on a camel, and from my past experience of the way you run my mug into ROCK PRODUCTS, I am not going to be made the subject of general hilarity in that way.

Speaking of that camel, whose name, by the way, was "Lovely-Sweet" (according to the nigger who owned it), I found he presented me with an Egyptian flea that has become greatly attached to me, and has been my cheerful companion for several days. I have not yet met that flea face to face, though I have assiduously sought to make his personal acquaintance. I only know that he loves me, and that I do not reciprocate his affection. He is of a most shy and retiring disposition, and I notice that when I make wild slaps at him he has, at that moment, retired to some more secluded spot, which is a good reason to designate the flea as a male, for modesty forbids me to consider it a female.

There is a world of interesting and most surprising sights in this strange country, and I can safely recommend my friends of the building material trades to also borrow some money of their rich relations and come out and see it.

Cairo is certainly a surprise to the average traveler, who thinks of it only as the capital of a barbarous land. We spent a couple of weeks there at the famous old Shepherds Hotel, and found it a most enjoyable experience. There are a dozen other splendid hotels, and they all seemed to be crowded, for Cairo is probably the greatest winter resort in the world, though the English and French predominate, and the American is apt to feel a little lonesome. It seemed to me there were dances to attend every night, where everyone wore their burrah clothes, and where you could hear a dozen foreign languages besides seven different kinds of English, and see the same swarms of British officers in their swell uniforms dancing at the different hotels as if dancing was the principal occupation of the British army.

One day, in the hotel terrace, we heard the clatter of a hundred handsomely uniformed Egyptian cavalry, and all rushed to the edge of the terrace, for the world was hastily passed, "The Khedive!" And then followed a carriage with Abbas II in it, bowing graciously to all of us gaping jays. I was near enough to touch him and was pleased to see so clever and decent a young fellow. Unlike his race, he was of quite fair complexion, with reddish brown hair, and a quizzical smile, and altogether looked far more like a Milwaukee brewer than a royal personage. He seems to be thoroughly popular with his people, and has the happy faculty of getting along with everybody, even the British, who have clipped his wings so that he has no great amount of executive power left.

Unfortunately, Mr. Abbas failed to see me in the crowd, so I did not get my expected invitation to call upon him and his family, and I can only speak from hearsay in describing him as a man of fine domestic tastes, living in a modest little cottage about the size of the Auditorium Hotel, in a very unpretentious way for a khedive. I understand the law allows him 300 wives, but Abbas is no hog—he knows when he has had enough—so he has only forty-seven Mrs. Abbases, and when the last census was taken at 9:30 a. m. yesterday he had only 252 children, but he figures that his family ought to satisfy T. R. (ex.) that he, also, does not like the idea of "Race Suicide." It is quite a touching picture to think of Abbas coming home nights from his office all tired out trying to keep track of the price of cement, and after supper taking his children on his knee and telling them stories from the Arabian Nights until

they all fall asleep in his arms, and then calling in Mrs. Abbas, or a few dozen of her, and have her put them to bed.

The one great overwhelming impression one gets of this land of perpetual sunshine and cloudless skies is that it is suffocatingly overcrowded. Egypt is about a thousand miles long and nine miles wide in its widest part, being solely the Valley of the Nile, all of the rest of its vast extent being worthless desert practically uninhabited. In this shoestring of a country some fifteen million people are crowded, and while the Nile lands are probably the most fertile in the world, the natural result of such awful overpopulation is a miserable, wretched poverty beyond belief!

I have seen statistics that the population averages 923 to the square mile in the Nile Valley, and that Belgium, the most densely crowded country of Europe, has 540. You can see the effect in traveling, either by rail or steamer, in the constant swarms of natives with their camels and donkeys and starved cattle ceaselessly traveling up and down, forever on the move, and the awful swarms of naked black children clustering around the endless string of mud hut villages, just as they have for thousands of years. Of course they die off like flies, as indeed they must, to make room for the vast swarms that they bring into the world. When T. R. comes here on his celebrated hunting trip I predict you will never hear another word from him on the subject of Race Suicide.

I cannot see any cure for Egypt's trouble, and it's none of my funeral anyway. I have troubles enough of my own in the lime business. The destruction of the polygamous feature of the Mohammedan religion would be a great step in the right direction, and I hope England will have nerve enough to stamp out polygamy, even if she has to fight in every Mohammedan country and call upon the Christian world to help her for the benefit of the entire human race. Otherwise I have no objection to the Mohammedan religion. Aside from a vast amount of puerile trash in it, common to all religions, it has the merit of instilling absolute sincerity in its believers. It was quite touching to see, among these wretchedly overworked farm laborers, how they would stop their oxen plowing, get out a small carpet, turn to the east, kneel upon it and pray out loud, with constant bowing and rubbing their foreheads in the dirt, and totally oblivious of the tourist spectators! It has been so long a time that I have quite forgotten when I last saw an American farmer stop his farm work for a few minutes of prayer!

Again, the Mohammedans are all teetotalers. There is not a barroom in all Egypt, except such as are supported by Christians, and my dragoman, a fine intelligent black, tells me that he never knew the taste of any intoxicating drink, and never knew a Mohammedan who did. With all their frightful drawbacks they are always, and absolutely, a sober people.

Another illusion of mine dispelled is that the desert was a flat, sand plain, whereas the Nile Valley is crowded with lofty ridges and desert mountains of stone that are often loftier and grander than anything on the Hudson, and immeasurably wilder than the scenery of the Mississippi. At present I am writing this on a tourist steambot, just going south from Luxor, and it has been scarcely warm at any time, while at night there is a raw cold in the air that necessitates a grate fire and winter clothing.

There are vast ruins at Luxor, the site of ancient Thebes, the Temple of Karnak alone covering, it is said, a thousand acres; but I am frank to say ruins do not interest me greatly. When I want to see a really noble ruin I will go to Lincoln, Neb., and call on W. J. Bryan. I also am in imminent danger of becoming a financial ruin myself on account of the hosts of beggars who swarm about you like mosquitoes in St. Louis, and who are just as irritating, until you give them a little to "imshi" (get out).

This letter will be mailed you from Assuan, a city near the southern border of Egypt and nearly a thousand miles south of the Mediterranean, which we will reach tomorrow. It is a place dear to all pious Golf-players like myself, for every time we make a foolzie it is quite correct to say "Assuan" with emphasis, for Assuan is the greatest dam in the world.

For further particulars about the antiquities of Egypt see the Encyclopedia, for I am not going to waste my time like this any longer, while three ladies are calling me to cut it short and sit in at a game of bridge.

I am going to ask the captain of the British steamboat to run up the American flag tomorrow, in celebration of the Louisville convention of the National Builders' Supply Association, and it is needless to say that I shall greatly miss being with all the good fellows there.

CHARLES WEILER.

The Samuel J. Vail Company, 803-804 Hammond Building, Detroit, Mich., have issued a calendar for the month of March, with a wooden peg in one corner and the following inscription: "We are pegging along, sending you various articles. A year ago it was a 'Feather,' suggesting that if you would 'tickle us' with orders we would 'tickle you' with good material, quick shipments and right prices."

GOOD WORK OF THE JERSEY SUPPLY MEN.

The Mason Material Dealers' Association of New Jersey Holds
Interesting Annual Meeting and Delightful Banquet.

NEW YORK, March 12.—The annual meeting of the Mason Material Dealers' Association of New Jersey was held at the Hotel Manhattan yesterday. There were two deeply interesting business sessions. The affair terminated with a grand banquet, at which about 200 of the active members, who are connected with the retail supply business in the state of New Jersey, and the representatives of manufacturing concerns, who are associate members, participated.

Walter C. Shultz, of Hoboken, presided at the meetings and acted as toastmaster of the banquet. James M. Reilly, of Newark, secretary of the association, acted as chairman of the committee of arrangements. Seven new active members were added to the roll, and five associate members were admitted, which practically makes the influence of the association complete. The meeting was very harmonious in every particular, and there was a feeling expressed on every hand that a general resumption of business activity portended a good future for the mason material business in the season that lies before us.

The association has a record of five years of unparalleled usefulness in securing the recognition of the legitimate dealer, and in cooperating with the manufacturers and producers of building materials to preserve sane and stable markets through organization, and to advance the interests of builders within the jurisdiction of the association upon the soundest kind of a financial and equitable basis. The tokens and expressions of harmony and goodwill observed on every side are the best evidence of the kind of work that the association has done, is now doing and will continue to promote in the future.

The New Jersey Mason Material Dealers' Association is a model organization of the kind, and such an association should be organized and sustained in every one of the states, all affiliated and cooperating with the National association through the medium of direct representation based upon the total membership. It has been proved to the satisfaction of all that cooperation instead of merciless competition between the retail dealers in building materials is the only safe route to the maintenance of good business conditions, alike for the retailer, the manufacturer and the building community. It is not a question of low price or high price for materials, but the right price to sustain the stability of the market that makes for progress, for profit, and for all the rewards and emoluments of sound and proper business conditions. These conditions have been and are secured through cooperation, and "supply and demand" has little to do with the case. It is the pronounced conviction of the business world in modern times that the cooperation of kindred and allied interests is the best way to secure and preserve wholesome conditions, the kind that is of value to the employer and employe, and to all others interested and connected in any way with the commerce of today.

THE REGISTERED ATTENDANCE.

Walter C. Shultz and M. E. Cannon, Charles S. Shultz & Son, Hoboken.
James M. Reilly, Secretary Mason Material Dealers' Association of New Jersey, Newark.
M. F. Ellis, Conkling Lumber Company, Bernardsville.
E. L. R. Cadmus, Ogden & Cadmus, Bloomfield.
Edwin Demarest, Edwin Demarest, Tenafly.
J. M. Campbell, Campbell-Morrell Company, Passaic.
J. D. Loizeaux, J. D. Loizeaux Lumber Company, Plainfield.
Selah Schoonmaker, Smith-Schoonmaker Company, Somerville.
W. C. Salmon, Henry Salmon & Son, Boonton.
Ambrose Tomkins, Oscar B. Williams, Charles A. Ernstberger, Brenton Tomkins, Walter R. Fox and Thos. M. James, Tomkins Brothers, Newark.
J. H. Miller, Nutley Coal & Supply Company, Nutley.
Charles Wolf, Wolf, Stewart & Co., Newark.
M. H. Chase, Marcus-Sayre Company, Newark.
H. D. Post, Stone-Post Company, Irvington.
C. E. Bennett, Cresskill Lumber Company, Cresskill.
David Harper, David Harper, Harrison.
Edwin Taylor, Mulford Coal & Lumber Company, Elizabeth.
Edward Rigg, Jr., Edward Rigg, Jr., Burlington.
Joseph Brady, James Brady Sons, Bayonne.
Harry Reeves, Consumers' Coal & Supply Company, Ashley Park.
F. K. Irvine, ROCK PRODUCTS, Chicago, Ill.
James W. Wardrop, National Builders' Supply Association, Pittsburg, Pa.
H. M. Fetter, Wm. G. Hartman Cement Company, Philadelphia, Pa.
Frederick Bowden, Newark.
George Ogden, H. E. Ogden & Son Company, Newark.
Isaac E. Hutton, Ridgewood.
U. F. Washburn, Washburn Brothers, Jersey City.
Chas. E. Townley, Newark.
Thomas Henry, Weehawken.

E. Blauvelt, Hackensack Coal & Lumber Company, Hackensack.
D. D. Bellis, Westwood Coal & Lumber Company, Westwood.
George H. Payson, George H. Payson, Englewood.
N. H. Rand, Thomas Robson & Co., Philadelphia, Pa.
Daniel Edwards, Edwards Lumber & Coal Company, Long Branch.
Irving Collins, J. S. Collins & Son, Moorestown.
Charles D. Warner and Watson S. Anthony, Dealers' Building Material Record, Chicago, Ill.
N. W. Clayton, South River.
M. D. F. Soverel, Jas. T. Pierson & Co., East Orange.
J. J. Terwilliger, E. G. Brown, Newfoundland.
Fred C. Van Keuren, Van Keuren & Son, East Newark.
Ray W. Salmon, T. B. Miller Company, Summit.
H. W. Smock and W. Harvey Jones, Buchanan & Smock Lumber Company, Asbury Park.
C. F. Richters, Thos. Langan Lumber Company, Perth Amboy.
V. L. Bittner, Bittner, Fitzpatrick & Co., Rahway.
E. N. Searing, Dover Lumber Company, Dover.
E. S. Carr, E. S. Carr, Ridgefield Park.
Joseph M. Perrine, Perrine & Bucklew, Jamesburg.
Horace S. Osborne, A. S. Marsellis and W. A. Dunlap, Osborne & Marsellis Company, Upper Montclair.
W. J. McKay, N. S. P. Manufacturing Company, Newburgh, N. Y.
C. Weber Jones, S. H. French & Co., Philadelphia, Pa.
J. W. Clinton, Campbell-Morrell Company, Passaic.
C. A. Andrews, J. B. King & Co., New York City.
F. S. Parker, Lehigh Coal and Supply Company, Hoboken.
W. H. Hoagland, W. N. Hoagland Company, New York City.
George S. Shultz, George S. Shultz, New York City.
H. H. Shultz, Est. C. A. Shultz, Kingston, N. Y.
Frank Oberkirch, St. Mary's Sewer Pipe Company, St. Mary's, Pa.
Edward Conlon, Jersey City.
I. Rolfe, Rolfe Building Materials Company, New Brunswick.
Chas. W. Guilbert, Jr., Rock Plaster Manufacturing Company, New York City.
F. B. Hinternhoff, F. B. Hinternhoff, Hoboken.
W. O. Anderson, N. J. Pulp Plaster Company, Trenton.
C. T. Clark, Thos. Robinson & Co., Philadelphia, Pa.
F. A. Daboll, Charles Warner Company, Wilmington, Del.
E. M. Rodrock and H. M. Post, Paterson.
W. W. Bale, Pennsylvania Cement Company, New York City.
W. C. Morton, W. A. Simpson and George G. Gleason, Consolidated Rosendale Cement Company, New York City.
Frank M. Stranahan, Consolidated Rosendale Cement Company, East Orange.
Ernest Braun, Braun & Howe, Brooklyn, N. Y.
Chas. Agnew, John Agnew Company, Paterson.
J. L. Dwyer, James F. Pierson & Co., East Orange.
Otis Wright, Bittner-Fitzpatrick Company, Rahway.
E. G. Bonneau, Clifford Miller Company, New York City.
W. K. Hammond, New York City.
J. C. Segulie, J. B. King & Co., New York City.
H. K. Hobart and W. L. Krider, United States Gypsum Company, New York City.
Thos. M. Cusack, George W. Jones and F. C. Terry, Spottiswoode-Cusack Company, Orange.
S. B. Simon, N. J. Adamant Manufacturing Company, Harrison.
George E. Stewart, C. W. Ennis & Co., Morristown.
Chas. Warner, Chas. Warner Company, Wilmington, Del.
H. A. Brocas, Kelly Island Lime and Transport Company, Cleveland, Ohio.
James E. Clonin, Clonin & Messenger Company, Astoria, L. I.
Hugh McDonald, Chas. Warner Company, New York City.
W. S. Sheldon, N. J. Lime Company, Hamburg.
J. E. Sheesley, Chas. Warner Company, New York City.
Chas. Carman, Clifford Brick Company, Cliffwood.
A. D. Tuttle, Tuttle Brothers, Westfield.
C. J. Curtin, Farnam-Cheshire Lime Company, New York City.
W. E. Carr, Rock Plaster Manufacturing Company, New York City.
F. F. Comstock, Comstock Lime and Cement Company, New York City.
A. D. Vincent, Palmer Lime and Cement Company, New York City.
W. B. Vanderveer, Charles Warner Company, New York City.
Frederick L. Kane, Sackett Plaster Board Company, New York City.
L. H. Carr, Alpha Portland Cement Company, New York City.
A. N. Pierson, A. N. Pierson Company, New York City.
John B. Wight, Alpha Portland Cement Company, New York City.
W. B. Abbey, W. B. Abbey, Newark.
J. M. McDonald, J. B. King & Co., New York City.
G. N. Thompson, N. J. Adamant Manufacturing Company, Harrison.
Wm. Tiger, Ellis Tiger Company, Gladstone.
Edward F. Atwater, W. J. Atwater & Co., New Haven, Conn.
F. H. Johnston, City Coal & Wood Company, New Britain, Conn.; also Mason Material of Connecticut, New Britain, Conn.
F. A. Walter, Vulcanite Portland Cement Company, New York City.
James C. Meeks and Irving M. Comes, Atlas Portland Cement Company, New York City.
M. T. Brewster, Brewster & Son, Ridgefield Park.
D. L. Dalgh, Rock Wall Plaster Company, New York City.
C. P. Robinson and F. B. Geddes, Whitehall Portland Cement Company, New York City.
Howard Moore, L. D. Cook Company, Bound Brook.
John Buhl, Sackett Plaster Board Company, New York City.
M. P. Stephens, Stephens Brothers, Summit.
J. S. Foster and W. G. Moorehead, Robinson Clay Product Company, New York City.

H. B. Green, Whitehall Portland Cement Company, New York City.
Charles Grover, Rock Wall Plaster Company, New York City.
C. R. Swain, Perrine & Bucklew, Jamesburg.
R. C. Vidal, Blanc Stainless Cement Company, Allentown, Pa.
G. A. Misner, Cook & Genung Company, Newark.
P. H. Bailey, F. W. Bird & Son, New York City.
W. O. Persons, W. O. Persons, Montclair.
Fred E. Townley, Newark Lime and Cement Company, Newark.
A. C. Puddington, Homan & Puddington, New York City.
F. W. Naylor, Shepard & Morse Lumber Company, New York City.
Arthur E. White, Palmer Lime and Cement Company, New York City.
Harry B. Green, Green & Pierson, Madison.
Frank E. Morse, 17 State Street, New York City.
D. C. Wiley, B. H. Belknap and E. B. Morse, F. E. Morse Company, New York City.
L. N. Palmer, Jr., Palmer Lime and Cement Company, New York City.
James Wotherspoon and E. B. Goode, Jr., Wotherspoon Plaster Mills, Inc., New York City.
R. G. Sayre, T. F. & H. C. Sayre, Elizabeth.
W. DeWitt Stanford, J. & S. S. Thompson, Elizabeth.
K. E. Adams and J. J. Demarest, John J. Demarest, Closter.
R. F. Cram, R. F. Cram & Co., Wharton.
G. W. Horre, Neureiter & Horre, Elizabeth.
B. F. Fell, Fell & Roberts, Trenton.
J. J. Zimmerman, Robinson Clay Products Company, New York City.
L. H. Washburn, Washburn Brothers, Jersey City.
W. E. Crooker, Rockland-Rockport Lime Company, New York City.
Wm. Gerritsen and John Stewart, Gerritsen & Stewart Lumber Company, Garfield.
W. H. Hendrickson, Hiram Snyder & Co., New York City.
Judge W. H. Speer and Judge Robert Carey, Jersey City.
John W. Slayback, Slayback Van Order Company, Caldwell.
H. C. Faulkner.
H. C. Weston, H. B. Halsey Company, South Amboy.
W. W. Case, White & Case Lime Company, Rockland, Me.
Wm. Reuther, Dealers' Record Cement World, New York City.
J. Maxwell, Carrere, Blanc Stainless Cement Company, Allentown, Pa.
Ellis W. Lavender, W. H. Barnes & Son, New York City.
G. F. Farrell, C. H. O'Neill, Jersey City.
E. P. Williams, Alpha Portland Cement Company, Easton, Pa.
C. S. Leonard, Sackett Plaster Board Company, New York City.
Francis N. Howell, New York Dealers' Association.
Richard Morrell, Campbell-Morrell Company, Passaic.
John J. King, John J. King & Co., New York City.
C. A. McGuire, Brooklyn Dealers, Brooklyn.
F. H. Boyd, New England Lime Company, New York City.
Otto Meyer, Edgewater.
W. H. Raymond, Isaac E. Hutton, Ridgewood.
C. W. Troxell, Rockland-Rockport Lime Company, New York City.
F. J. Ogden, Ogden & Cadmus, Bloomfield.
R. E. Griffith, American Cement Company, Philadelphia, Pa.

THE EXECUTIVE SESSION.

President Walter C. Shultz opened the fifth annual meeting with the following address:

PRESIDENT'S ADDRESS.

Any one who is familiar with the changes that have taken place in the past year cannot doubt that there has been great progress made in establishing trade customs that should be of lasting benefit to the dealer.

The improvements that we have felt since our last meeting cannot be attributed entirely to the year's work.

Such things develop slowly, and the foundation may have been laid for many of them in the years that have gone before; but now—today—we have the opportunity to build on this solid foundation what we will, and for years to come.

To build wisely, we must consider the method of building, the material that we have to build with, and how that material shall be handled.

There is work for all of us to do, and the success of our association will be measured by the total of our efforts.

I see no reason why we cannot accomplish all that we have set out to accomplish, and far more, if each will do his part.

To do our part we must understand our duties, and I want to discuss that point with you, for I feel that our future success will depend more on our attitude toward the association and each other than any other influence that can be brought to bear.

When you elect a governing board you expect that board to study the situation and plan to meet your requirements. To do so to the best advantage, your board must know what is going on in your locality; if there is any trouble, who the offenders are and all the circumstances connected with the case.

Judging from the reports that I have heard, most of our members seem to feel that the association has been a good investment.

Some of them have cited cases of direct benefit that have yielded large profits, and few, if any, have not been protected from competition that would have greatly decreased their profits, to say nothing of the opportunities that have been afforded them by local organization; but I have heard a few remarks, such as "What has the association done for me?"

If there is any dealer here who feels that way I would like to answer in the Yankee way—by asking him,

"What have you done for the association, and for yourself?"

Have you encouraged manufacturers who are with us, by giving them your trade, or have you paid no attention to a list of associate members who have done more for you and the association in the past year than you have done in five?

Have you upheld the principles of the association?

Have you made an effort to bring in any dealers in your locality that are not with us?

Have you shown a willingness to serve on committees or do other work that does not show direct returns?

Have you paid your dues promptly and done whatever else you could to add to the success of the association?

If so, you have done your part. If you have not been benefited in proportion, the fault is ours, and we invite your criticism; but if you have not done your part the fault is yours.

Now, we do want this association to be of benefit, not only indirectly, but directly, to every one of its members, and we are ready to work to make it so; but all must help to do it.

The man who does not help, *hinders*, and it requires extra effort from some one else to make up the ground that has been lost through him.

We have lots of enthusiastic workers here who have proved their willingness to do anything that would help their fellow members.

They have sunk their interests, in many cases, for the benefit of the association, and stand ready to do so again.

To them and some of the manufacturers who will meet with us today we owe the success of our undertaking, and I trust that we will meet those manufacturers in a spirit of fairness and show our appreciation of what they either have done or are trying to do for us.

If we have not gained all that we have attempted, and perhaps, not as much as you think we should have gained, remember that we have scarcely started and that sprints in a marathon race may be losing efforts.

There is a question that will come up for discussion today. It is the "5 cents allowance on Portland cement."

It may not be satisfactory to you and you may be disposed to criticize it, but in doing so, consider that it is a step in the right direction. The dealer is recognized by it; and the manufacturers who brought it about are our friends.

Today we have an organization strong, not only in numbers, but in influence, and it is so because we have the confidence of the trade in general and the real friendship of manufacturers, such as our associate membership is largely composed.

We owe a great deal to our associate members, and any plans that we make must be to their interest, as well as ours.

Many of them have already proved their friendship and I know of others that only require an opportunity to prove theirs.

They are not men that have been, or could be, scared into this or any organization that they do not believe in.

Neither can they be effected by threads or vague promises; but fair treatment and reason does appeal to them and we have only to prove that our cause is worthy of consideration, that we are fair-minded and do not want something for nothing to have their support; so, in carrying out our work, a clear, impartial view of both sides of the question must be taken by all of us.

We must "have a definite aim—go straight for it."

Our aim should now be to make the association profitable to our associate members, who are making it profitable to us; and to bring the dealers of the state of New Jersey closer together in every way, so that all may benefit by the union.

Secretary James M. Reilly read the minutes of the last annual meeting, which were approved as read. The secretary also read a number of communications, which were ordered filed.

The following active members were elected on application: Stone Brothers, Jersey City; Bittner, Fitzpatrick & Co., Rahway; Frank B. Hinternhoff, Hoboken; E. S. Carr, Ridgely Park; J. P. Joralemon, Rutherford; Stone-Post Company, Irvington, and the Nutley Coal and Supply Company, Nutley.

The following associate members were elected:



JAMES M. REILLY, NEWARK, N. J.



WALTER C. SHULTZ, HOBOKEN, N. J.

Frank Oberkirch, St. Mary's Sewer Pipe Company, St. Marys, Pa.; Alpha Portland Cement Company, Easton, Pa.; Farnam-Cheshire Lime Company, 39 Cortlandt Street, New York City; the Kelley Island Lime and Transport Company, 1133 Broadway, New York City, and F. H. Boyd, 285 South Street, New York City.

Secretary Reilly delivered the report of the board of trustees, as follows:

REPORT OF BOARD OF TRUSTEES.

The old saying that "nothing succeeds like success" can be applied to the New Jersey Mason Material Dealers' Association, for the reason that since its formation it has made steady progress in advancing the principle of protection.

Every dealer must surely realize that trade conditions in the marketing of all classes of supplies show a great improvement over those which obtained prior to this organization advocating the principle of selling through dealers only; even those manufacturers and wholesalers who insisted that such a policy could not be admitted have since changed their minds, and many of them who were most insistent in their opposition are now firm advocates of the principle.

Today's meeting, with its large attendance of representative dealers from all sections of our state, is an indication of our zeal and earnestness to promote better trade conditions.

Some of our New York friends may think it indicates a desire on our part to eventually annex Manhattan Island to the Banner State of the Union, which, perhaps, at some charitable future moment, we may agree to do, in order to show the island inhabitants how to enjoy the good things of life, which they appear to have in abundance, without undue frivolity in so doing.

A Change in Methods Required.

One thing we hope will grow out of today's meeting in the Empire City, and that is a larger and greater interest in the question which concerns us all, the directing of sales of builders' supplies through legitimate channels, and we know that they can be of great help, particularly in effecting some more equitable distribution on the part of brick manufacturers.

It is a matter of gratification to report that, in addition to the hundred and more retail dealers represented at today's convention, we expect to have present at the open session, which has been arranged for an attendance of from fifty to 100 representative wholesale dealers and manufacturers.

It is also very gratifying for your board of trustees to report that a steady progress is being made in correcting the wrong trade practice of indiscriminate sales, which success we believe is attested to sufficiently to convince the most skeptical dealer in the splendid list of associate dealers, which includes many of the most prominent firms and individuals in the several lines of business.

What Combined Influence May Do.

The steady increase in our list of active members is another pleasing indication of success, and in the loyalty and support given to the principles adopted, we find the best index of our strength and influence.

If we can combine the influence of our active and associate members in favor of trade rules, or in opposition to an abuse of trade customs, we may hope at any time in the future that the policy acceptable to both will become a fixed standard in the trade, and it should be the aim and purpose of our organization to bring about a mutual confidence which will tend to this end, there creating conditions satisfactory to all branches represented in the industry.

That the activity of the association has been well and ably maintained during the year is attested to in the number of meetings and conferences that have been held. The board of trustees held ten regular and one special session, each well attended, one session having an attendance of seventeen out of the eighteen members comprising the board. It was found necessary to

hold many conference meetings *ad interim* between regular meetings, in order to make arrangements for delegations to meet and confer with officials of the various cement companies, and with officials of other companies supplying materials to the trade. These conferences necessitated members visiting Easton, Philadelphia, New York, Camden, Hackensack, Amboy and other points, each calling for a sacrifice of time on the part of the members, in order to advance the good work in your behalf and in behalf of all dealers' in masons' materials.

Status of Cement Block Manufacturers.

It was considered advisable to take action which would define the status of cement block manufacturers, for which purpose it was agreed to adopt the following resolution:

Resolved, That it is the sense of this association that present conditions obtaining in this state in the cement block industry would not warrant any exception being made which would justify a manufacturer or wholesaler becoming competitor with the retail dealer for this class of trade.

Your board of trustees would lack appreciation if mention were not made and credit given to the president of our association, Walter C. Shultz, for his unselfish and persistent effort to advance its interests and the interests which it aims to conserve. Time or trouble has had no part in his reckoning where an opportunity offered to enlist the cooperation of a manufacturer, or to convince a wholesale dealer that the trade interests of the dealer required his cooperation, and his earnestness in bringing together groups of retail dealers and discussing with them the value and advantages of local organizations in connection with the work of the state association, entitles him to the hearty thanks of every member.

It is a pleasure to add that his activity was ably supported by members of the board of trustees, who also are entitled to the best thanks of the association, particularly Messrs. Agnew, Washburn, Campbell, Tomkins, Lotzeaux and Osborne, each of whom contributed generously of their time at considerable personal expense.

Practical Results to Dealers.

It is this kind of disinterested work, this kind of activity, which has produced results, which to every dealer has, or will, put money in their pockets. More than one dealer here today can testify to the actual results in tangible form that have been reaped through the beneficial influence which the association has brought about.

At one of the conference meetings referred to, a dealer handed to the secretary \$20, to pay for dues, and said it was the cheapest money he ever spent; that it represented to him an increased profit of between \$1,000 and \$1,200 during the year 1908, which profit would never have been realized but for the good influence of the association on dealers in his neighborhood, and also that it represented a relief from business anxiety and worry incident to price-cutting, worth as much more.

Good enough for the association, even if no other dealer could be found to say as much, but there are many others who can tell you that they have found even larger benefit.

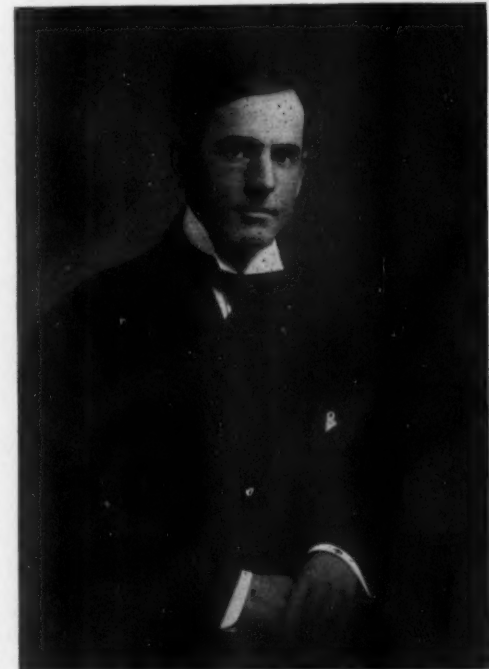
Form Local Organizations.

It is to be regretted that many members have not appreciated what the association has been doing, and what they can do for themselves if they will but learn from those who have profited. This can be done by asking questions when the subject of "The Value of Local Association Work" is taken up for discussion.

Our organization has two distinct features that are of equal benefit to its members. In fact, the success of the one cannot be considered perfect unless the second is put into practical operation.

With the success of our effort to direct sales by manufacturers and wholesale dealers through dealers, of what benefit will it be if another unprofitable competition through the cutting of prices commences between retail dealers?

What difference will it make at the end of a year,



E. L. R. CADMUS, BLOOMFIELD, N. J.

when the balance is struck, whether the poor showing is due to one cause or another?

What dealers must do to reap the full benefit of association work is to spread the gospel of good fellowship, the second important work of our organization. Out of this feature some of our best results have been secured to members.

This part of the good offices of the association should be given larger consideration, and if a true value is placed on it, many dealers who now think their competitor about the worst that ever happened may hope to count him as one of their dearest and most intimate friends.

What has happened, may and can happen again, and this most desirable result has also been brought about, not in one case only, but in several, since our association was organized.

Reciprocity Not Competition.

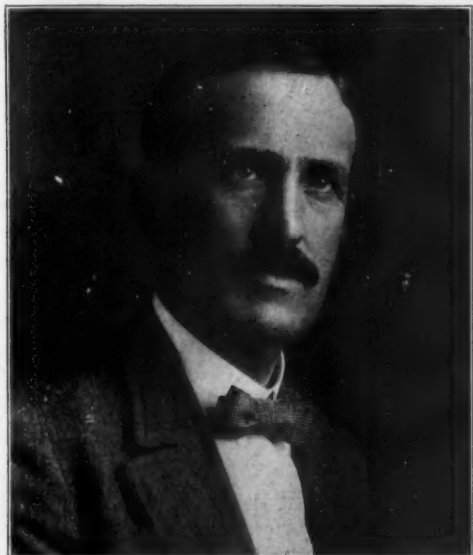
This suggestion has a large value to practical men, and if you were not practical you would not be members of an association, or give the time to attend the meetings; therefore, put aside personal feelings, aroused by a foolish, unprofitable competition, get together, talk it over, plan to compete with each other on reasonable lines, but insure to yourselves a just profit on your investment, and fair compensation for services. Don't try to see how much you can sell, but reverse it, and see how much you can get for what you do sell.

Sell \$100,000 and make \$10,000; don't sell \$500,000 and make \$5,000, because if you do you are robbing the manufacturer, yourself, and the municipality in which you do business.

The latter, because the assessment for taxation is based on the low cost; the contractor, because his estimate is based on the purchase price of materials, and even the owner does not derive benefit, often selling at the price it cost.

Indiscriminate Sales and Cutting of Prices.

The other side of this question is found in the competition and rivalry between manufacturers which made it necessary to form this organization. Because a dealer could not carry every line and brand of materials, the overanxious representative would decide that his company must have a share of the business, and not being



JOHN M. CAMPBELL, PASSAIC, N. J.

able to sell in competition with some manufacturer who got on the job earlier, he takes the unfair method and solicits and sells to the contractor at a price lower than the local dealer quoted.

This first cut in prices must be met by the company whose material the dealer handled, then another cut and so on until the manufacturers have reduced prices to a point that a dealer could not handle the product.

Now, if the manufacturers will consider the question they will find that the dealer is not a disturbing element, but that the policy which we are advocating is a reasonable and rational one.

No movement has ever been started among dealers to demand a reduction in prices, and no kick has been registered against the manufacturers making a profit on their invested capital, and if they are not making a safe profit, then the blame belongs to themselves and not with us.

The Retail Dealer a Preferred Customer.

This association stands for what is right, and its membership, representing a large invested capital, stands ready to serve the manufacturing industry and wholesale trade, as distributors of their products to the consumer, asking in return for the financial risk assumed and services rendered, the right to market the materials dealt in, without a forced competition of those with whom they place orders.

It is the unanimous opinion of every member of this association that a preferential price allowance should be made to legitimate yard dealers on every line of materials handled, and that this preference should include every class of order with regard to kind or quantity, and to the adoption of such a rule by all manufacturers our membership stands committed.

The most gratifying result of our five years of persistent effort, and one which we believe was brought about largely through the influence which our association has exerted, is the recent action taken by the Associated Cement Manufacturers in making a price allowance of 5 cents per barrel in favor of the dealer, and in making the dealer a preferred customer.

This action is appreciated by your board of trustees, indicating, as it does, a recognition of the principle we

have advocated, and also a recognition by the largest class of manufacturers of the retail dealer as a necessary factor in the business.

The discussion of the question, "What Does the 5-Cent Allowance Mean?" will, we are satisfied, bring out an assurance that a splendid benefit to dealers has been secured, one which can be made a basis for insisting upon a similar course of policy with manufacturers of sewer pipe, bricks, and other materials handled by dealers.

We would take this opportunity to express our appreciation to several associate members for the personal interest taken in supporting our association, and to A. F. Gerstell, of the Alpha Portland Cement Company, we desire to acknowledge our obligation for courtesies extended to members of our committee during their visit at Easton, and for his expressed interest in the welfare of the retail dealer.

To those manufacturers and wholesale dealers who have given encouragement to our work by becoming associate members we acknowledge ourselves debtors, as by their support we have gained in influence and they are entitled to your consideration.

The best way to show our appreciation is in living up to the resolution pledging members to give preference when placing orders. In so doing we will live up to the true association principle of reciprocity, and in place of doing an injustice to other manufacturers, it will encourage them to become association members, thereby adding to the influence of a body pledged to promote fair and square dealing.

If there are any who will not do this, then the blame is with themselves.

Sewer Pipe and Brick Conditions.

Before closing this report we wish it were possible to say that we had a remedy for the exasperating conditions existing in the sewer pipe trade, or that it were possible to promise a change in their methods of marketing brick.

There are in each industry many who would prefer selling through dealers, but the competition often prevents living up to the policy.

It is something, however, to report that the manufacturers at Hackensack are in a way to meet the request of the association, and we hope this competition will be eliminated to the advantage of some of our members.

To bring about a better condition in the sewer pipe trade will be the special work of the Trustees during the coming year.

While there exists a cause for some friction on a certain material through the methods employed in extending the market for this material, your board feel satisfied that this matter will be adjusted.

One of our associate members, the Penn-Allen Portland Cement Company have been the subject of complaint, and when written to replied that they had taken up membership for one year only, notwithstanding the fact that they signed a contract of membership which obligates the company to conform to our rules and regulations. Your attention is directed to the action of this company, which places them virtually in the same class as the Edison Company, whose name was reported to you as selling to contractors and consumers.

In conclusion, we urge every member to stand firm on their individual privilege, not to buy or handle any material made or sold by a manufacturer or wholesale dealer who solicits or sells to the natural customers of a dealer, and to continue to patronize and give preference to those who carry out the policy of selling to dealers only.

Submitted on behalf of the Board of Trustees,
JAMES M. REILLY, Secretary.
New York, March 11, 1909.

Several progressive corrections to the constitution were adopted to make the same more direct and practical.

The annual election resulted in the unanimous reelection of Walter C. Shultz, president; Charles Agnew and J. C. Richardson, vice-presidents; James M. Reilly, secretary; Horace P. Cook, treasurer, and the following trustees to serve for three years: Ambrose Tompkins, Newark; Selah Schoonmaker, Summerville; T. M. Brewster, Richfield; M. P. Stephens, Summit; E. L. R. Cadmus, Bloomfield.

Ambrose Tompkins and John M. Campbell, who composed the committee of the New Jersey association to attend the annual meeting of the National Builders' Supply Association, held at Louisville, Ky., in February, were called upon to report.

Mr. Campbell said: There is no doubt that the National association is doing a great and good work, and that body is responsible for the inception and propagation of the doctrine of handling building materials through the dealer only, and in so far as this is the vital purpose of the New Jersey association the influences are parallel.

It is my opinion that the scope of the National association is too broad to get the beneficial local effect that the state organization has accomplished so well in our own case. I do not believe that we can afford to overlook the influence and recognition that the National association already enjoys, but I believe that it should be more of a representative body, made up of delegates from state associations based upon their memberships. The students and thinkers of the supply business, both at the delivery end and at the producing end, attend the meetings of the National association, and it is doing good work and is bound to go on. I believe that the suggestion that I have made is in the line of improvement that they now have under consideration.

Mr. Tompkins said: I found great benefit in attending the national meeting. It is a very progressive organization, and on every hand I encountered a willingness on the part of the members and others to impart information, which is one of the main benefits of this kind of organization. It brings us to have a better feeling for our neighbors in the same line of

business. I feel that we are making a fine showing in the New Jersey state association, and I feel that our state association gets down closer to our daily needs and is consequently indispensable, although the work of the national association is also very important and beneficial.

The question of the 5-cent allowance on cement was discussed, the president explaining that the executive committee had taken the matter up and sent out a letter of inquiry with regard to it to twenty different companies doing business in the state, and that the replies so far received indicated that the cement manufacturers all have the intention of protecting the dealer.

Mr. Campbell remarked that all of the work of the association had been in the line of securing the recognition of the dealer as the preferred route of delivering materials, and that doubtless the cement manufacturers had adopted this deferential as a step in the very direction that this organization stands for.

Mr. Ellis said: Five cents is altogether inadequate, but it is easy to see that there is another side to this matter, and it certainly looks like we have the co-operation of the manufacturers as far as they can go.

Mr. Loizeaux said that it was his observation that all the cement manufacturers as well as others catering to the trade were acting very fairly.

Mr. Schoonmaker remarked: With a voluntary recognition on the part of the cement manufacturers like this, we can afford to be patient and see how the matter develops.



AMBROSE TOMPKINS, NEWARK, N. J.

Mr. Shultz said: The report of our Board of Trustees indicates that our association has made good, and we still have a promising future, for the work before us is still growing. This association has been instrumental to a great extent in controlling the sales of builders' supplies through the natural channel of the dealer. Our active committees have done their work well, and so has our efficient secretary in bringing all of this before us in such clear form.

This brings me to the last number on the program, to ask, is there any criticism of the work that has been done, and has the work of the association been a benefit to the dealer?

Mr. Post said he felt the work of the associations had been quite a benefit. I cannot say truthfully that things are rosy in Patterson, because we are not thoroughly organized, and I hope to see better conditions there.

Mr. Payson of Englewood said: Mr. Tuttle and myself are the only members in our town. We seem to be overrun with outside contractors, for we never can sell any of the large jobs in our own territory. We understand that some of these people are buying direct. This association has not benefited us very much because this condition has been very unsatisfactory.

President Shultz retorted: If Mr. Payson will make his report in definite terms to the officers of the association we will do something. No complaint of this kind has been filed.

Mr. Hutton: I believe in all associations nothing can be done without lots of work. All of us can think

of some benefits no doubt, even in Paterson, where a man has been known to sell at cost.

F. H. Johnson and W. J. Atwater, representatives of the Connecticut Material Dealers' Association, were called upon for a few remarks. They said in turn that they had come to the New Jersey Association, which was considered to be the parent of their own, to get pointers so as to be able to improve the work in Connecticut, and hoped at no distant date to be in a position to hold a meeting and invite the New Jersey members to come over to Connecticut and see the progress that they were making. They insisted that it was harder to have a successful association there than elsewhere.

In reply President Shultz said: Our associate membership list now has more than forty of the most influential manufacturers. They now recognize the dealer. We want the reports of our active members of any trouble that they may have and will try to help them out by coöperation.

John Bell, a member of the Eastern States Association, said that he came as a New York dealer to get points from the New Jersey dealers. Our association operating in Greater New York is filled with suspicions of one member against another. We have never been able to accomplish anything except to fight out the labor question by standing together. We once closed up all the material yards and warehouses in this city for six weeks, and we have done away with the sympathetic strike idea and created a better feeling between the laborer and employer. What I want to find out is a way to establish a fair status all around for the builder and the dealer. Our organization in Greater New York certainly needs help, and when I see this large attendance of Jersey dealers it makes me feel that we are a mere little chick, while you are a full-grown hen. We can get under a very small wing if you can show us how to get protection.

Secretary Reilly remarked: I am glad to hear the New York gentleman speak as he did, for it was my impression that New Jersey might soon annex Greater New York. (Laughter.)

The close communion executive matters were disposed of and then the meeting adjourned as an executive session and reopened as an open session.

THE OPEN SESSION.

President Shultz opened the meeting with the following remarks:

If the year's work had accomplished nothing more than to bring you together today it would not be lost. It is a great pleasure to see you here, because I believe that your being here is an indication of far greater harmony between the manufacturers of masons' materials and those who handle their products in New Jersey than there has ever been before.

The events of the past few years have proved that the manufacturer and the dealer can work together with advantage to both.

We are proud to be associated with the manufacturers on our list, and we are grateful to them for the able assistance that they have given us.

I hope they have also been benefited by the association.

Many of them tell me that they have been. Some of them have shown more enthusiasm than the dealers, and have studied the situation closer.

Their criticism, opinions and suggestions will be most welcome at any time, but particularly this afternoon, for we are here to learn.

The subjects that will be discussed will interest all of us, I think; and I am sure that more able speakers on those subjects could not have been secured.

I know that you are anxiously waiting to hear them, so will no longer delay the pleasure that we have been looking forward to.

The secretary read the following resolutions, which were handed to him by Mr. Ennis, chairman of the Resolutions Committee. They were unanimously adopted:

Sewer Pipe Manufacturers.

Resolved, That the Mason Material Dealers' Association of New Jersey place on its records a protest against all manufacturers of sewer pipe who make a practice of soliciting orders from consumers; and, further, that we assert that sales of materials to consumers is the legitimate right of the retail dealer, and should be conserved to them.

Rock Products.

Resolved, That the thanks of this association are due and that the same are hereby extended to Rock Products for its practical co-operation with the retail trade, and for reporting the proceedings of our last annual meeting to a wide circle of dealers.

Resolved, That we appreciate the further favor conferred in the attendance at this session of Fred K. Irvine, editor of Rock Products; and, also, the attendance of Charles D. Warner, editor of Building Material Record.

National Builders' Supply Association.

Resolved, First, That the Mason Material Dealers' Association of New Jersey pledges the united support of its active membership to the National Builders' Supply Association in any action it may take to secure the adoption of the policy among manufacturers to sell through dealers only.

Second, That the National Builders' Supply Association be urged to submit to all manufacturers of masons' materials the proposal to recognize legitimate dealers as preferred customers, by the establishment of a reasonable price allowance over and above any price quoted to non-dealers.

Charles Warner, of the Charles Warner Company, of Wilmington, Del., told of the adoption by his company of automobile delivery trucks. He stated that it was not an easy problem to make such a radical change in the matter of delivering material. His concern is operated on a highly systematic basis of tabulating costs and dividing the various kinds of expenses topically for the purpose of giving them careful study. Mr. Warner related how they had selected a truck equipped with a motor after careful calculation and observation and how they had given the truck a systematic amount of work to do. The result was to the effect that they had demonstrated that big loads for long hauls were much cheaper by the automobile than by horses and that they were now verifying this result. Mr. Warner wanted to know if there were any other dealers who had employed an automobile truck for this purpose, so that he could get the benefit of comparative experience if there were any such. He believed that there was a good round profit contained in the use of the automobile if properly handled.

The president repeated the question, but it seemed that no other dealer present had any experience with the automobile truck.

The president called on John M. Campbell for his paper, which follows:

SUCCESS AND HOW TO WIN IT.

By JOHN M. CAMPBELL.

Success as we know means the actual accomplishment of the thing that we set out to do.

The thing that we set out to do in forming this association was to promote harmonious business relations among the dealers of our state and to provide protection to its members against unjust competition, so that all dealers would have a better opportunity to get a living profit for the materials they deal in.

We cannot say that complete success has been attained, but we can say that great progress has been made, and that conditions are much improved.

Success is not inherited, nor is it a matter of chance, but of growth and development; the result usually of hard, honest toil.

It is the hard work of the past that now begins to show results. The work that we have done in the past, the work that we are now doing, and what we will do by keeping continually at it in the future, is sure to win success.

To attain success, dealers must realize that the past has gone, today is here; the past was the age of individual effort, today the era of co-operation. Let us live in the present. Let us work as work is being done today, for today and for the future. Let us realize that it does not pay to stick too closely to old ideas for the go-it-alone method of individuals is of the past, not of today. The old plan will not do today—it is economical folly.

In the conduct of association work we have three interests to consider: Ourselves, the dealers; those from whom we buy; those to whom we sell—each of equal importance, each dependent upon the others.

To the Dealers.

The record of the industry in every community will show that where there is hostility among those engaged in the business, loss or very small profit is the result, while in the communities where the dealers are alive to the new conditions, they are working in harmony, and profits have come to them.

Harmony is the best oil for squeaks—it is the lubricant that permits the machine of industry to move smoothly.

You will make dollars by uniting with others in the trade—you will lose dollars by fighting with them.

We all agree that in theory this is correct and that by the concentration of effort and unity of plan, waste and loss is reduced to the minimum.

Then let us put it in practice. Unite and do it now.

The dealers in every city and town should meet and arrange to work harmoniously together, each dealer a member of our state association, each state organization represented in the national association, all working under our plan of justice—a square deal to all: to the manufacturer from whom we buy; to the public to whom we sell, and to ourselves—the dealers. It is only under that principle that trade associations can last, and win.

In some localities you will find a dealer or two who is reluctant to join and work in accord with others. He admits that such plans work all right elsewhere, but they won't work in his town. He believes that the meanest men in the business are located right there. Another man will kick about trivial matters, has no faith in his fellowmen, and without giving us help or influence, knocks because we have not done more for him.

To the first we say: Human nature will average pretty much the same everywhere in the land. In other localities the conditions are now or have been just as bad.

And about the other man our friend Adams, of Pittsburgh, wit and mason material dealer, says: "Such kickers are not broad-gauge men. They think in boys' and misses' sizes." Is that you?

There's some cuss who's allus knockin';

Is it you?

Every scheme of life he's blockin';

Is it you?

Someone's allus, allus moppin';

An' in darkened ways a groppin';

'Sted of hangin' on and hopin';

Is it you?

Don't squeal; take the hand as it is dealt and play the game like a man.

Dealers—stand together—work together—but we must be workers, not shirkers.

To Those From Whom We Buy.

All that is said about coöperation between dealers is applicable to the relations that should prevail between the dealers and the manufacturers, for our interests are the same.

There is still considerable selling by the producer to the consumer, but conditions have very materially

changed for the better. This is evidenced by the attendance of so many of our friends today and we take this opportunity to thank you for your coöperation.

Many manufacturers not associated with us as members, protect dealers, but for those who do not, we must continue to preach the doctrine of united effort.

It is not what we say, but what we do that counts. Deeds not words.

Here are some of them: (I hope you will pardon the personal reference for it is only given to illustrate the point.)

Two or three weeks ago, I gave to a man who is right here now in this room an order for materials worth about \$18,000. This order would surely have been placed elsewhere, but for the fact that the company with which I am associated, wanted to show their appreciation of a decent man who does business in a decent way.

This week I gave to another man, a manufacturer who said he would be with us today, an order for about \$5,000 worth of materials. That order he received because he does not compete with us. Several other manufacturers tried hard to land that order by selling direct to the owners or contractors—tried both. They did not get the order; this man did—through us—dealers in the town.

A large manufacturing establishment, long in the business with a factory in a nearby city, until last year, sold their materials to anyone that had the money and wished to buy. Last year that manufacturer changed his policy and sold only to dealers. Although it was not a banner year for the building material business, yet note the result: That manufacturer informed one of our officers that his sales last year increased more than 50 per cent. (They also are represented in this room.) Does it pay? You bet it pays.

At the meeting of the Ohio dealers last month, the general sales manager of a manufacturing concern, I believe the largest in his line in this country, stated that such trade associations were of the greatest help to the manufacturers. He said also that he valued it so highly that he would supply his small army of salesmen with membership application blanks, and would instruct them to try and get all the dealers in that state to join.

At the same meeting a cement manufacturer stated that they had always sold only to dealers, and that in the past ten years their total loss by reason of bad debts did not exceed \$300.

We could give you many such illustrations, but we have not the space or time to go on.

Such results are beacons that not only reveal the dangers and folly of unjust methods, but light up for us the narrow and difficult pathway that leads to success.

To Those to Whom We Sell

In any trade agreement we must consider the public. We must be fair, but to be that it is not necessary that prices should be hammered down to a cut-throat level.

Stability with a reasonable profit is very much more to be desired than cheapness.

Stability is best attained by a fair understanding between the producer and the dealer and it is necessary to the life and growth of all business.

The contractor should not expect to buy at dealers' prices and the policy of protection to the dealer should be established and recognized.

The question is often asked: Who is a dealer? Would not the simplest answer to that question be—A member of our association.

We should not eliminate all competition, but leave competition that will help, not competition that will destroy.

Let us make a study of our business, so that we will be able to deliver the best materials in the best way, and as we learn more, we will earn more.

Let us all do what we can to uplift the industry. Do not tear it down by meanness. Build it up by fairness.

Let us conduct our business based upon the foundation stones of honor, knowledge and conscientious work; these resting upon the bedrock of united, harmonious effort should enable us to win success.

Mr. Campbell's able and well-thought-out paper was received with much applause.

William K. Hammond, a brick manufacturer, spoke to the subject of "Brick, the Real Thing." He said that he had not made any preparation to meet such a large gathering, but that he was full of the subject of brick, and one of the main features of his talk was to tell how good cement is when used as a mortar for bricklaying. He told a number of experiences and anecdotes about the brickmakers of ancient Babylon as well as the works of the Pharaohs.

James W. Wardrop, secretary of the National Builders' Supply Association, next addressed the meeting, taking as his subject "The Man at the Pump." Mr. Wardrop expressed his appreciation of the grand work in evidence of the New Jersey Mason Material Dealers' Association. He commended the officers and members for the thorough understanding that they demonstrated in their organization of the great modern principle of coöperation in business dealings. He expressed appreciation for the good fellowship and harmony that had doubtless been brought about through the manly and broad-minded policies of the organization as between the manufacturers of materials and of dealers. He then mentioned the great work of the national association, in which he is personally interested in the capacity of secretary. He told an anecdote on the subject of the value of organization which occurred in his own former experience as a railroad man, when a barge loaded with building stone had sunk in the Hudson river. He was detailed to raise and deliver that material and he told of the great organization of derrick boats, divers and lifting apparatus that finally raised the barge and brought it safely to the dock. He told of the number of times that the diver had to go down to make the lines fast to the sunken barge, and how

that every time that he descended he had to depend upon the man at the pump. All that tremendous organization and investment was then concentrated to the eyes and nerves and the judgment of the man at the pump.

Now the officers of this and every other association can do things if you, the members and co-laborers, will furnish them with the air that they breathe or the force with which to accomplish things, by prompt response when called on for your part of the service, and by backing up their efforts wherever and whenever the same are needed. This association is working precisely on the same idea as that the national association is working on, namely, to secure the recognition and coöperation of the producers of materials for the men who are on the ground and are charged with the duty of delivering the goods in good condition, and adjusting the matter of collections, and shouldering a part of the responsibility of the large undertaking of furnishing building supplies. He exhorted the members to stand by their association and suggested that it would be of tremendous benefit to all of them to have some plan of coöperation with the national association, to make them a part of the great national undertaking. In conclusion Mr. Wardrop spun some apt illustrations and closed his remarks amidst great applause.

President Shultz next introduced Frederick L. Kane, of the Sackett Plaster Board Company, who had prepared the following interesting paper on the subject of "Fireproofing."

MODERN IDEAS FOR FIREPROOFING BUILDINGS, CONSTRUCTED WHOLLY OR IN PART OF WOOD.

BY FREDERICK L. KANE, OF SACKETT PLASTER BOARD COMPANY.

The late Edward Atkinson, who was considered quite an authority on mill construction, and who, as well, was president of the Manufacturers' Mutual Fire Insurance Company of Boston, once said that the word "fireproof" should be stricken from the underwriters' dictionary. Nothing is fireproof. It is simply a question of the length of time which any material can resist fire, and particularly, fire and water at the same time. Therefore, materials used in the construction of buildings can better be divided into two classes, namely, inflammable and non-inflammable material.

We are all familiar with the modern first-class fireproof building with steel frame, reinforced concrete or terra cotta floors, with sub-dividing partitions of non-inflammable material, metal covered doors and windows, etc., which is quite without the scope of the subject under consideration, and is alluded to merely to show how much thought and ability are devoted to these buildings in the way of protection from fire. On the other hand, buildings constructed wholly or in part of wood, like brick, stone or concrete buildings having wooden floor and roof beams and sub-dividing partitions of wood, receive but little thought and attention from architects and builders in the way of rendering them practically fireproof.

According to the National Board of Fire Underwriters, \$250,000,000 is the annual average fire loss in the United States in recent years, to say nothing of the loss of hundreds of human lives. The money loss alone is ten times as great per capita as in the principal European countries.

If half as much thought and ability were devoted to the prevention of fire in buildings constructed wholly or in part of wood as is expended in the designing and construction of the modern skyscraper, and for the various methods and devices for quenching fires, this fearful waste of lives and money could be very materially reduced, at little, if any, additional cost over present methods of constructing these types of buildings.

The necessity for something in this direction is not entirely overlooked, as is evidenced by the building and tenement laws of the City of New York, as well as by the Tenement House Act of New Jersey, which require that cellar, ceilings, hallways, light shafts and dumb waiter shafts shall be plastered over metal lath, or finished with plaster boards. These laws are very lax as drawn, and permit work to be done in such a manner that the full intent and spirit of the law is not always accomplished. It might be further remarked that if it is wise to protect portions of buildings of this class by substituting a non-inflammable material for the inflammable wooden lath, why should not the same principle be applied all through the building, particularly if it adds but little, if any, to the cost of construction?

The question of conservation of our natural resources is a subject on which a great deal has been written and said of late. The subject is of sufficient importance in the minds of our great men as to justify the president of the United States calling together the governors of all the states, as well as other prominent and influential citizens, to consider this great subject of conservation.

If it is worthy of such great consideration that we should preserve the forests by replanting, and take more effective measures to prevent the waste from recent fires, therefore, after this valuable timber has been cut, transported by rail, milled, transported again to the building, put in place by valuable labor, making the value of the lumber foot in place in the building very much increased over its standing value, why should we not consider it a matter of equal importance to prevent its destruction when in the shape of completed and expensive work?

Those of you who have engaged in the mason material business for twenty-five years or more, well remember when plastering was done entirely with mortar made from lime, and that plaster of Paris (which is calcined gypsum) was used only in gauging up the finishing putty coat. In this section of the country, as well as to a great extent in the West, the plaster of Paris produced for this purpose was made almost entirely from gypsum rock brought from Nova Scotia. There exists in this country an almost inexhaustible supply of native gypsum, and within the past twenty-five years a large amount of this gypsum has been worked into what is known as hard-wall plaster. I have not available figures to dem-

onstrate the rapid growth in the use of gypsum for this purpose beyond the fact that there was more gypsum rock mined in the state of New York in 1907 than the total imports from foreign countries during that year; and it is safe to say that the utilization of this valuable material west of the state of New York has increased in still greater proportion. There is probably no non-inflammable material so available or economical for the purpose of protecting wood from fire as this same gypsum. From this gypsum plaster boards are made.

The use of plaster boards, properly plastered with wood fibre plaster, for walls and ceilings is a long step in the direction of preventing the spread of fire in the class of buildings referred to, as it substitutes an absolutely non-inflammable fire retardant for the most inflammable part of ordinary construction, namely, the wooden lath. Plaster boards, properly nailed on and then plastered to the desired grounds, cost no more than an equally good job of plastering on wooden lath. By proceeding a little further, with a layer of plaster boards in all floors, and by fire stopping between all floor beams and rafters at all partition lines, each unit of space becomes a fireproof box through which the hottest fire, that may be generated by the ordinary contents of a room, cannot penetrate.

Fires will occur from contents of buildings no matter how fireproof the building may be; but where the interior framework is of wood, a protection such as I have outlined gives ample opportunity for the extinguishment of an incipient fire. If you refer this proposition to an experienced fire fighter (and many will be found in our various fire departments) he will tell you that the rapid spread of fire through tenement houses and similar buildings, where the old kindling wooden lath is good and dry, costs many a human life, and that any method which will confine the incipient fire to the spot where it originated, long enough for the department to get at it, would save much valuable property and many human lives.

The fire hazard in mills, warehouses, freight sheds, and all similar wooden commercial buildings would be greatly reduced by covering all exposed interior wooden surfaces with boards made of gypsum, which are much cheaper per square foot than the commonest kind of wooden boards.

We have, at the present time, a most striking example of proof that this class of fire protection is being substantially recognized.

The Boston and Albany railroad corporation for a number of years used plaster boards as a partial fire protection in many of their extensive sheds and warehouses in the vicinity of Boston, by lining the inside, and sometimes the outside, of their grain conveyors, and by hanging great curtains of plaster board across the trusses of their immense wooden sheds. They had several fires, which gave them practical demonstrations of the efficiency of this method of protection. As you know, they had a tremendous fire a little over a year ago, which destroyed their extensive wharf on the Cunard Pier in Boston. This wharf shed is now being rebuilt and the entire inside of it will be lined with plaster boards so there will be no exposed wood, except the flooring, and that will be a double wooden floor with two layers of plaster board between the two layers of wood—even to the floor immediately over the water. The supporting columns are of steel, which will be protected by plaster boards; and around certain columns and partitions, the main supports of which are steel I-beams, the plaster boards will be reinforced by nailing them to a stud which is made of gypsum with wooden nailing strips imbedded therein, and which is known as Gypsinite Studding. This one pier shed will take 1,500,000 square feet of plaster board; and they have in contemplation the erection of several other large warehouses on the same principle.

Referring again to such buildings as dwellings, apartments and hotels with wooden floor beams, protection can be carried still further by substituting in sub-dividing partitions these gypsinite studs for the ordinary 2"x4" of wood. A gypsinite stud is usually made 3"x3" and has two light wooden nailing strips imbedded therein to receive and hold the nails with which the plaster board and trim are fastened on. These studs have been in use but a few years, but have given the utmost satisfaction, and have passed through the severest kinds of fire tests most successfully.

Referring again to the conservation principle, and to the fact that an almost unlimited supply of gypsum exists in this country, it is well worth considering that inasmuch as, in large quantities, a cubic foot of calcined gypsum (plaster of Paris) can be produced at much less than half the market value of a cubic foot of the commonest kind of wood, is it not well in line with this principle to consider its substitution in the face of the rapidly decreasing lumber supply? These studs and plaster boards are handled with the same facility and by the same class of mechanics that now handle the wood which we seek to supersede in our efforts to diminish this terrible fire loss.

Wood must be used in building construction until something better and cheaper takes its place. Therefore, why not take every reasonable means to prevent its destruction at its highest value, as we are seeking to preserve it on the stump? The inertia of public prejudice in favor of old methods is something fearful to overcome.

The principles of construction outlined in this paper have been presented to building and insurance authorities more than once, and it is now before the Chicago laboratories, on whom the underwriters rely for guidance in such matters. They will make such tests as in their judgment are necessarily arbitrary and proper, and we trust they will have something official to say on the subject within a short space of time. But these laboratories are constantly crowded with applications for the testing of all sorts of devices for the prevention of fire, as well as building materials, and within the experience of the writer they have given much thought to the comparative value of various methods of roofing used over wooden roof boards. You all know how many different kinds of composition or ready roofing are on the market. There are hundreds of manufacturers, each with his own special particular brand. The competition between the manufacturers of composition roofing and the manufacturers of sheet metal roofing, for favor in the eyes of the Underwriters' laboratories, has been keen for many years; but it is undoubtedly true that if, in considering the comparative fire retarding qualities of various kinds of roofing when laid over wooden boards, they would interpose a layer of good, thick, cheap plaster board between the roof boards and the roofing to be used, they would, at very light expense, accomplish the purpose of protection, without much consideration of the individual merits of the myriads of different brands of roofing which have to be considered.

The hour was getting late and the president announced that it would be necessary to dispense with some of the numbers on the program, and the editor of ROCK PRODUCTS accordingly gave up his time. Several gentlemen in a semi-official capacity were called upon, who gave cordial greetings and suggestions of coöperation with the organizations which they represented. Among these were G. G. Gleason, president of the Builders' Exchange, and John Bell, of the Eastern States Association.

The meeting was then adjourned subject to the call of the board of trustees.

VERY ENJOYABLE BANQUET.

While the hotel people were transforming the convention room into a banquet hall, the active and associate members and guests retired to the spacious parlors of the Manhattan, where an informal reception was held in which all participated with a great deal of pleasure. In about an hour the doors were thrown open and soon the guests were seated, and after the Rev. John McDowell gave thanks, from oysters to cigars, every part of the menu was thoroughly enjoyed amidst the highest type of good fellowship around that festive board.

MENU.

	Cotuit Cocktails	
	Petite Marmite	
Celery	Nuts	Olives
Cucumbers	Spanish Mackerel, Maitre d'Hotel	Potatoes
	Tenderloin of Beef	Stuffed Green Peppers
French Peas in Cream	Fresh Mushrooms	
	Chartreuse Punch	
	Roast Guinea Chicken, au Jus	Salad Excelisior
	Fancy Form Ice Cream	Assorted Cakes
Cheese		Coffee

Amidst the smoke of fragrant Havanos Charles D. Warner, of Chicago, spoke to the toast of "Harmony." His remarks were polished and gracefully interspersed with metaphor, ending with enthusiastic patriotism, which with the waving of the flag at the close won him much applause.

But the feast of good things intellectual had only begun, for the next speaker, Hon. Charles W. Griggs, of Paterson, answered to the toast, "Progress."

He is a powerful, accomplished and much learned orator, and handled his subject from the standpoint of his wide observation as former attorney general of this great nation in a most pleasing and instructive manner. His thoughts were all gracefully clothed with apt settings, which gave all the more force to his clear statements, and it is a pity that a verbatim report is not now available. He stated that the laws of trade and the laws of nature are the same, and neither can be amended or changed by the will or design of a few men, even though they be delegated lawmakers. In fact, laws are never made, but existing laws can be defined and molded into statutes. Statutes that do not express laws already existent become inoperative and have no effect.

The markets are built up and maintained by the makers of business. There are three things most important in the creation of business which maintains the markets. These are certainty, stability and confidence. We are now all waiting and looking for the uplift of a new activity in business, and this will come if these three guiding points are observed by the makers of business. Progress can only be made calmly, and when it is made in this way it is profitable. The necessity of one is the necessity of all, and it is not by the wild advance of prices nor by the extreme depreciation of prices, but by ascertaining the right prices that the balance which at once encourages consumption and yields a profit to the producer and to every individual who handles the goods is obtained. This right price is the practical basis of merchandising that lays at the foundation of profitable business, the corner stone of commerce.

[This extract by no means does justice to the valuable advice and suggestions that were contained in the remarks of this great thinker.—Ed.]

Rev. John McDowell, of Newark, was next introduced and he spoke upon the subject "Foundations." He is a sound believer in the principles of coöperation. He said that the foundation of our nation as amount of our resources or profits but the view of the philosophy of life that is developed in our study of philosophy. I have come to believe that there is well as the foundation of our business fabric is the type of manhood that composes it. It is not the

something here for me as a preacher, although some people consider that the parson must keep out of practical matters. We have come to know in these later times that cooperation is the life of the trade and not competition, as it used to be. We have found that competition as developed in modern business conditions is a blight and not a benefit. This reflected back to the character of the men who are in business. The most important development of business relations is not the amount of profit made on the capital invested, but the kind of men that are produced by the association in which they are placed and surrounded in their business engagements. Not the number of men but the character of these men is the safety of our institutions and the uplift of our civilization. This is the foundation that our commercial life must assist to weld now for the future.

By cooperation men are brought together, to grow broader and stronger, to make a better typical man, who will stand out prominently as the best that our civilization can produce.

The next speaker was Hon. Wm. H. Spear, of Jersey City, who responded to the toast, "United Effort." Mr. Spear is a lawyer, gifted with all the practiced arts of oratory. He tossed beautiful posies of sentiment to each of the preceding speakers, and then broached his subject by saying: "The will of the people is good enough to translate into law, that is the permanent will of the people. All of the upheavals in business that have brought ruin and disorder have come from a misunderstanding of this philosophical principle. Conservatism is essential before it can be found what the people really want. The rash desire of a single day does not express the fixed need of even an individual. The old plan of destructive competition in business has now been almost discarded. The new principle of cooperation is better understood, and is now growing apace. I congratulate this association on the progress of its united effort, and its honest efforts to get together for the uplift of your important industry. Cooperation and honesty in business are the great business principles of the times, and these backed by the united effort of such organizations as you have made means the greatest good that can come from your endeavors."

James W. Wardrop, Pittsburg, Pa., the well-informed and gifted secretary of the National Builders' Supply Association, was the last stated speaker on the program. His toast was named "The Lion in the Way." He was in his happiest vein, and observed that all of the previous speakers had represented the various phases of cooperation and associated effort that were necessary to accomplish a satisfactory success, but that there is always something in the way to prevent the taking of the final step that would give complete cooperation the profit that is needed. He took a simile from the scripture of the young lion that roared in the way right in the path of the strong man who would seek the object of his affection. His mind was made up, even as your minds are made up tonight. He was satisfied and determined, and there was no reason why he should not go down to the foreign country, except that the young lion roared in the way. The young lion is roaring in the way tonight, and his name is "indecision." We argue and we resolve, we decide and finally reach the point of action, and then we put it off until another time. We decide to have a committee go over the matter. The young lion is roaring in the way. The strong young Hebrew went down and met the lion and slew him, and threw him out of the way, so that his path was clear, and that is what this and other associations should and must do if they would attain that which they desire, to have and to enjoy.

I am here to plead with you to annihilate the lion by taking the action that is necessary to get all the benefits of complete cooperation, and of the organization principle in the builders' supply trade. As I said this afternoon, I have been impressed with the great things for good that the New Jersey state association has and is accomplishing, and what I further suggest is a closer walk and a stronger cooperation with the National association, parent to all associated effort in this line of activity.

Frank H. Johnson, of the Connecticut Mason Material Dealers' Association, said that he hailed from the land of steady habits, as the ancient byword had it. We are just learning how to cultivate and secure the benefits of cooperation. Our little association is trying to learn of your more successful one.

John Hall, president of the New York association, remarked that the relations between the New Jersey dealers and the one which he represented were very pleasant, and he was willing to admit that the Jersey brethren held the palm for success in their undertakings as an organization.

Judge Robert Carey, of Jersey City, made some apt remarks incident to the great subject of modern cooperation in business, and illustrated the same with a number of graceful similes.

It was long past the hour of midnight when this pleasant banquet adjourned, and soon the convention was broken up into parties of twos and threes as they made their way to the late or early trains, whichever a New York banqueter might term them.



An Ingenious and Economical Equipment.

By I. G. BAYLEY.

That American enterprise is not altogether a thing of the past is shown by a small sand plant, on the Jersey coast of the Delaware Bay.

The originators saw that a quantity of sand was being used for various purposes, in a large city near by, and that the beach close at hand had a supply large enough for any demand. They did not take the time to look up an expert consulting engineer, or let out any contracts for the building of the plant, but pitched right in and built everything except a small one and one-half horsepower gas engine, of such material as they could lay their hands on.

The belting was made of a piece of old fire hose, split up the center, making two belts about 4" wide by 20' in length.

The pulleys were of most original construction. A blacksmith rolled the tires from a piece of 3"x1/4" by one-quarter iron, for which he charged 50 cents. A pair of spokes, of 1 1/2"x3/4" timber, was clamped over the shaft, and held by 1/4" bolts, nails being driven into the ends through the rims, holes having first been drilled for this purpose.

A countershaft carried two reducing pulleys, and a crank at one end; the latter being connected up with a 3" vertical pump, for supplying water to the hopper, and water trough above the grading drums.

The drums were 34" in diameter, by 9' in length, half being covered with fine wire, ten meshes to the inch, and the other half one-quarter inch mesh.

The drums mounted on one shaft, inclined about half an inch per foot, away from the delivery hopper.

The shaft was made from 4 1/2" square timber, turned down at the ends for 3" bearings of wood. On account of the rough wear the ends were further protected with iron ferrules driven on.

A spider framework, like the spokes of a wheel, was made at either end, and in the middle of the drums. 2 1/2"x3/4" rails were secured to the circumference end of the spokes, the full length of the drums.

Light iron bands, or tires, were furnished to connect the wire netting, ordinary stove bolts, 1/4" in diameter, being used.

The spokes were connected with the shaft by 3/4" boards, shaped 16" square.

The general framework of the bins and supports was of 3"x4" timber, the covering being 1" boards.

The water trough was made of and supported by 3/4" stuff, as also was the splash board in the rear.

The bottom of the trough was riddled with small holes, to distribute the water evenly over the outside of the drums.

The water trough and hopper were supplied with 3/4" hose connection from the pump, it being found from experience that the output was increased with a more plentiful supply of water.

On account of being so near the sea, it was found necessary to carry the depth of the well less than ten feet.

Both ends of the screen were open, one end communicating with the hopper, which was constantly being supplied with material by two men with shovels, a two-horse scraper being kept busy to drag the raw material from the beach to a pile within easy reach.

The material fell by gravity into the high end of the hopper having the finer mesh.

Here it was tumbled and washed through the mesh into the bin beneath, the coarser material being carried along into the next grading process, falling into the bin below, or traveling along through the outer end into the bin, J, through a spout under the bearing of the 30" pulley, M.

The screens made from thirty to thirty-two revolutions per minute, making three grades of sand and gravel, depositing it into different bins, where it was loaded into wheelbarrows and carried up an incline into the cars.

Six men were engaged, the output being a little more than a carload of fifty tons a day, though on a rush order as much as one hundred tons has been delivered.

On account of the simplicity of construction, a breakdown was a rare occurrence. The wire meshes were quickly repaired when broken by making a patch of wood, holding it in place with stove bolts, it being found that this method gave the same satisfaction as when patched with wire, since the patch in any case prevented the sand from passing through.

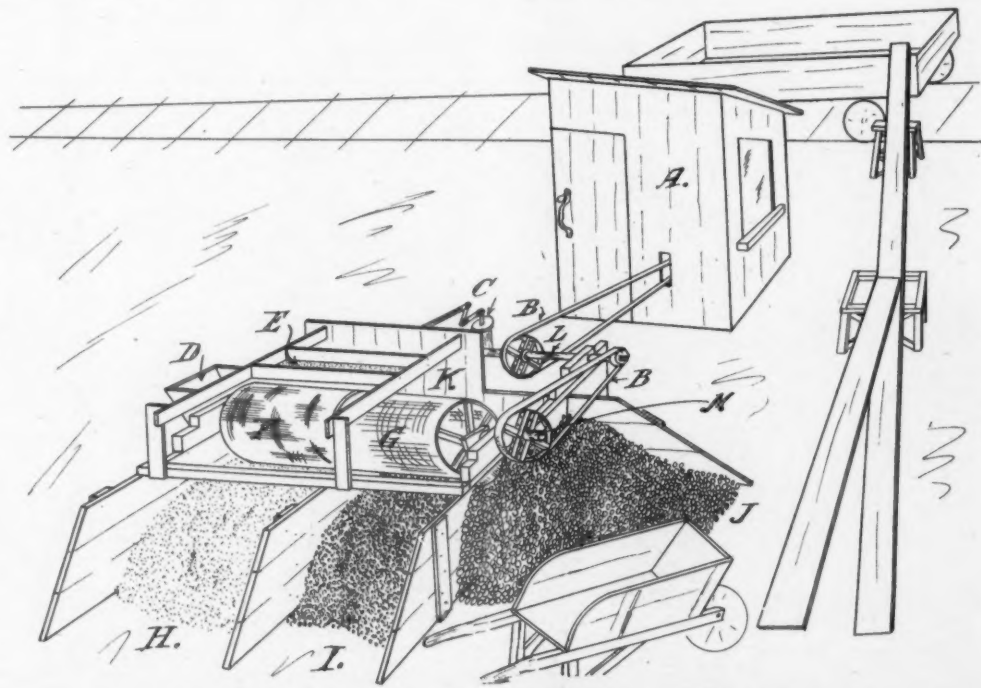
A market was found for all grades, which were used for many purposes, from concrete work to water and sewage filtration.

A natural deposit of rich black sand was found in the fall months, which was washed up on the beach occasionally, in a perfect condition for marketing, the foreign sand falling away from the black like so much sawdust.

This was loaded into cars without any further preparation. At other times it had to be collected, and was not so black, or free from other mixtures.

The Diamond Match Company purchased large quantities for sanding their match boxes.

This black sand was loaded into 200-pound bags and sold for \$8 a ton.



COMPLETE DIAGRAM OF AN ECONOMICAL SAND AND GRAVEL PLANT.

A, engine house, containing the one and one-half horsepower gas engine. B, fire hose belting. C, vertical pump, supplying water to, D, delivery hopper. E, trough perforated with holes. F, G, and H, grading drums. H, I, and J, bins for the three different grades. K, splash board. L, counter-shaft. M, main shaft.



RAILWAY MEN MEET.

Tenth Annual Convention of the American Railway Engineering and Maintenance of Way Association Held at Chicago.

The tenth annual convention of the American Railway Engineering and Maintenance of Way Association was held at Chicago, on March 16, 17 and 18. The sessions of the convention were held at the Auditorium Hotel. President William McNab, principal assistant engineer of the Grand Trunk Railway, presided, and called the first meeting to order on Tuesday morning at 10 a. m.

MORNING SESSION, MARCH 16.

The minutes of the last meeting were adopted without reading. The president then read his annual message.

The secretary and treasurer then read his report. The cash balance on hand March 15, 1908, was \$15,852. The receipts during the year were \$13,078 and expenditures \$12,783, leaving a balance to credit of \$295. The cash balance on hand March 15, 1909, was \$16,147.

The total amount of the impact test fund was \$5,582, and the amount expended to date \$5,315, leaving a balance on hand of \$267.

The membership at the last annual report was 680; members admitted during the year, 120; deceased, eight; resignations, eight; membership March 15, 1909, 784.

The report on Uniform Rules was considered, which, after discussion, resulted in the amendment of the rules. The report of the committee on signaling and interlocking was taken up and approved.

The report of the committee on brine drippings and refrigerator cars was then presented.

The reports on yards, terminals and rails were then taken up, after which the session adjourned.

EVENING SESSION, MARCH 16.

The first part of the session was taken up as a memorial to two members who died last year, Walter G. Berg and D. D. Crothers. A number of speeches were made and resolutions passed.

The committee on track reported and the discussion closed the evening session.

MORNING SESSION, MARCH 17.

The report of the committee on ties was first considered. The report was a compilation of statistics on various materials used for ties, their life and treatment. The sub-committee which inspected the varieties of ties in use reported on concrete ties as follows:

"The concrete ties include the Buhner, laid at various places on the Lake Shore, on the Pennsylvania Lines, the Chicago & Northwestern, the Lake Erie & Western and the Chicago Junction. They were removed from the last-named after a few months on account of breaking. The Kimball tie, laid in the Chicago & Alton, where there was trouble due to improper spiking, injuring the concrete and causing cracking; and in the New York, Chicago & St. Louis, where they have given good service. Percival ties laid in the Pittsburgh & Lake Erie and removed on account of failure; and Affleck, Chenoweth, Keefe, Hickey and Alfred ties, all of which failed in experimental application.

"No form of reinforced concrete tie has been made which is suitable for heavy and high-speed traffic, but the committee believes a properly reinforced concrete tie, with proper fastenings, may be found economical in places where speed is slow, and where conditions are especially adverse to life of wood or metal."

Wood preservation was the next subject taken up and discussed.

The report on ballast was the next topic. Sub-committees were appointed to gather data and prepare a report on customary recommended practice for preparation and deliveries of various types of ballast. The sub-committees were as follows: Crushed rock,

slag, gravel (bank and washed), cherts, cementing gravel and chert, disintegrated granite.

The committee submits new definitions for gravel and sand, to take the place of those heretofore recommended and published.

The adapted definitions state that gravel is coarser than sand and that sand is finer than gravel, but fail to establish any limit of size below which worn fragments of rock cease to be gravel and become sand. Therefore the committee recommends the substitution of the following definitions:

Gravel—Small worn fragments of rock occurring in natural deposits that will pass through a two and one-half inch ring and be retained upon a No. 10 screen.

Sand—Any hard granular comminuted rock material, finer than gravel, which will be retained upon a No. 50 screen.

Cementing Gravel.

There are two principal points in the territory east of Memphis where cementing gravel is worked for the purpose of supplying ballast to the railroads, one at Iuka, Miss., on the Southern Railway, known as the Tishomingo gravel pit, owned and operated by the Tishomingo Gravel Company of Memphis, and one at Perryville, Tenn., on the Memphis and Paducah division of the Nashville, Chattanooga and St. Louis Railroad, owned and operated by the Perryville Gravel and Ballast Company, of Memphis.

Tishomingo gravel is a water-worn gravel lying in a compact mass, requiring blasting before it can be handled with a steam shovel. It is composed of 20 per cent clay, 5 per cent sand and 75 per cent gravel. The cost in track is 47 cents a yard. The advantages of its use are: Small cost; quick cementing qualities; holds track in line and surface well under fairly heavy track; does not churn; very little dust, and has great resistance to erosion by water. Considered an excellent ballasting material. Has the disadvantage of growing prolific crops of weeds and grass, making it costly to keep clean.

Perryville gravel is an angular gravel lying in a compact mass, requiring blasting before it can be handled. It is composed of 10 per cent clay and 90 per cent gravel, with chemical analysis of 97 per cent silica, 2.5 per cent alumina, and 0.5 per cent iron. There is found in this pit considerable large stone, which has to be crushed before suitable for use. The cost of this gravel per yard in track is 71½ cents.

Advantages and Disadvantages of Various Types of Ballast.

Under this head the committee first enumerates the functions of good ballast preliminary to discussing the extent to which the different materials perform these functions.

Crushed Rock.

After naming the advantages claimed for crushed rock by its advocates, the committee says: Users of large quantities of gravel ballast, however, do not admit all of these claims, particularly that of better riding track. It is said that where track is to be raised only a very small amount, it is difficult to do this on stone ballast and to properly tamp the tie to an even and uniform bearing. For this reason it is claimed that gravel makes a more smooth riding track. Likewise it is more difficult and costs more to renew ties in stone, owing to the handling of the material. We have also heard it stated by foremen that it is harder to make and maintain very small adjustments of line and surface in rock than in other materials, but its good qualities far outweigh its poorer ones, and its use shows a material economic saving.

The best size for crushed rock is an unsettled question. Tests made on the Baltimore and Potomac Railroad indicate that there is a slight economy in the use of 2½-inch stone over 1½-inch, and a decided saving over ¾-inch.

A statement of results of physical tests of ballast stone is given in Appendix A to the report. This appendix also contains descriptions of the various tests, geological descriptions of the rocks examined and a study of the cost and comparative economy of some of the stones, as they apply to conditions on the Baltimore and Ohio. "Characteristics of Stone Ballast" on the Cleveland, Cincinnati, Chicago and St. Louis are shown in Appendix B, which also contains some interesting comparisons of cost of stone and gravel ballast.

Gravel Ballast.

Following an enumeration of the advantages and disadvantages of gravel ballast the report says: These disadvantages, however, exist in greatly varying degrees, and in carefully prepared gravel ballast disappear altogether. While it is true that some of the users of crushed rock maintain that it is superior to the best gravel, your committee feels that the evidence is not sufficient to warrant them in making an unqualified statement to that effect. Under extremely heavy traffic the indications are that crushed rock will stand better than the best gravel, but some of the best riding track in the country, with fast passenger service over it, and with reasonable maintenance expense, is put up on gravel.

Some physical tests of pit gravel on the Big Four have thrown light on the question of effect of sand and dust in gravel ballast, and the result of the tests is accordingly given here. The tests were made on small sieves by hand and must therefore be regarded as laboratory tests, rather than working tests under everyday conditions.

Percentage of Gravel, Sand and Dust by Volume.

(Compared to Original Volume.)				
Pit—	Gravel.	Sand.	Dust.	Remarks.
Lafayette, Ind.	81.6	27.0	1.3	Very good.
Mechanicsburg, O.	61.3	50.9	2.8	Fair.
Mound City, Ill.	68.0	44.1	2.9	Good.
Savona, O.	86.0	12.5	6.5	Poor—Cementing nature.
Terre Haute, Ind.	50.0	62.0	2.0	Too recent to determine.
Valley Junction, O.	59.6	55.4	3.6	Good but dusty and excess of sand increases track labor.
West York, Ill.	58.7	49.1	12.9	Very poor. Only fit for sub-ballast.

In what follows the term "dust" is applied to that material which is finer than sand under the new definition

recommended by the committee. All proportions have reference to the bulk.

Gravel having 3 per cent or less of dust has been found to drain very freely, while gravel having an excess of 3 per cent of dust is found to hold water to such an extent as to interfere with its thorough efficiency as ballast.

Gravel containing 2 per cent of dust will make a fairly dustless roadbed, but after being disturbed by track work it will cause considerable dirt until washed by a heavy rain.

It has been found necessary to have about 30 per cent sand to partially fill the voids in the gravel. Lack of at least 20 per cent of sand permits the pebbles to shift under the load and an excess of 50 per cent of sand prevents the ballast from becoming firm. In dry weather "pumping" or "blowing" takes place.

In the discussion which followed the definition of sand was amended so that when passed it read, "Any hard granular comminuted rock which will pass through a No. 10 screen and be retained upon a No. 50 screen."

The last report read was: Records, reports and accounts.

THE BANQUET, MARCH 17.

The dinner which is one of the features of the convention was held in the banquet hall of the Auditorium Annex.

President McNab presided as toastmaster, and the principal speakers were: Hon. George W. Ross, ex-prime minister of Ontario; Blewett Lee, general attorney for the Illinois Central Railway; John T. Cade; Hunter McDonald; Dr. J. A. Holmes; Colonel H. G. Proutt; F. R. Coates; Capt. Azel Ames and L. C. Fritch.

CLOSING SESSION, MARCH 18.

The first subject under consideration was: "Signs, Fences, Crossings and Cattleguards." Under this head the committee reported on "Concrete Fence Posts" as follows:

From observation of concrete fence posts your committee considers that the concrete post will have very little or not at all, as posts set from two to five years ago are at present in almost perfect alignment, and not a loose or broken post was found. They appear sufficiently strong for all practical purposes after being properly cured and set. The claim that concrete posts reinforced with steel form lightning protectors appears reasonable. They will, of course, resist the action of fire and decay. They will not float and cannot be displaced so easily as wood posts. On the other hand, concrete posts must be carefully handled in loading and unloading, and well cured before using. Fence wire in contact with their surfaces should be well galvanized. The concrete post is much heavier than the wood post and the cost of distributing and setting is about 25 per cent greater.

It would seem that the concrete post is particularly adapted to railroad use. Most of the post machines are cheap and portable and the materials used are in daily use on all roads using concrete; the materials are cheap and easily obtained.

Your committee corresponded with over twenty manufacturers of posts and postmaking machinery in the United States and Canada. A majority of these firms use or advise the use of Portland cement and gravel varying from the size of sand to pebbles which will pass a wire screen having meshes of from ½ to 1 inch square. The ratio of cement and gravel is as 1 to 4. The methods of reinforcing and tamping concrete posts vary almost as much as those of fastening the fence wire to the posts. The machines are of various capacities and design—from the one-post hand mold to the "post per minute" power machine with continuous mixer attachment. The average total cubic content of the 7-foot post is 0.825 cubic foot; of the 8-foot post, 0.95 cubic foot. The weights vary from 65 pounds to 95 pounds, according to methods of manufacture and reinforcement used. Concrete posts retail for from 25 to 35 cents per post. End and gate posts are of about three times the volume and cost of intermediate posts. In section, concrete posts vary from square or rectangular to triangular, half-round and circular. Reinforcements are of wire, wood, strap steel, steel and wire truss, wood and wire truss, chain scrap strips and expanded metal. Fence wire fastenings are also of various forms—from the wire loop around the post to the patent staple encasement. All the posts observed taper from a smaller top to a larger base. Some have very wide concrete block bases.

In response to invitations sent to all manufacturers four concrete post machine firms demonstrated their machines at Bay City, Mich., making twelve reinforced concrete posts each, which were tested at the Michigan Agricultural College.

These posts were tested for tensile strength; panels were erected to test the holding power of the fence in place as well as give the set posts impact tests and, if possible, to compare their strength of resistance to impact with wooden posts. They were tested in a machine of large capacity, 42-inch span, both ends supported, load applied in center. The following results were obtained at an average of seven to twelve posts of each sort so tested:

Name of manufacturer.	First crack.	Deflection	
		Maximum wt. in post broken.	Inches.
D	458 lbs.	1,090 lbs.	0.68
R	648 lbs.	1,071 lbs.	0.70
A	564 lbs.	1,020 lbs.	0.53
C	927 lbs.	1,356 lbs.	0.66

The comparative results show the importance of thorough tamping and stiff reinforcement near the surface of the post. A cedar post of dimensions identical with the average of these concrete posts would weigh about one-fourth as much and be four times as strong. The results in practice show that the wood posts used are much stronger than necessary rather than that concrete posts are not strong enough.

The report of the roadway committee was then considered.

Following this was the report on buildings, which was divided into various sub-heads. One of these was the "Report on the use of reinforced concrete for coaling stations and storage bins." Quoting from this report:

"An exhaustive search was made of the coaling stations and storage bins already erected, but comparatively few plants of this character are in use. Railroad engineers who have constructed such plants generally regard this type as satisfactory, but are not yet prepared to recommend its general use, because of the increased cost.

"Figures from the builders of reinforced concrete coaling stations indicate that they cost 50 per cent more than timber."

Another division of this subject taken up was to "collect data as to the actual use of reinforced concrete roofs for roundhouses, where located, life to date, results so far obtained, and critical analysis of advantages or possible defects; also diagrams of typical designs."

Their report was as follows:

Reinforced Concrete Roofs for Roundhouses.

In referring to "reinforced concrete roof" we mean one which is also supported by reinforced concrete beams and which fully conforms to the definition of reinforced concrete.

A reinforced concrete roof, properly constructed, is not porous enough to allow leaks or to permit gases and moisture to corrode the reinforcement except as it may crack. The cracks can be kept at a minimum, and, it is believed by some engineers, so prevented that the roof shall stay waterproof without any covering by reinforcing it against all the tension stresses due to expansion and contraction. During the past two years some large buildings have been erected on this theory, and so far they are giving excellent results, but the committee feels that until these buildings have had a longer test it should retain the position it held last year. It cannot recommend a concrete roof for a roundhouse without a roof covering on top of the concrete, although in a roundhouse where a leak cannot do serious damage more risks can be run than with some other buildings.

We are also not sure that we were justified in recommending a cheaper roofing for the concrete, as was done last year, and have revised our table of costs, given in that report, in that respect.

The committee is of the opinion that, unless the roof leaks badly, any pores in the concrete will be closed up by the cement wash or whitewash put on after the house is completed, or else by soot, and that the chance of any damage from corrosive gases is practically nothing. Some elaborate experiments made in Germany in 1907 by E. Probst had this subject under consideration. These tests subjected concrete beams under load to a highly concentrated mixture of steam, oxygen and carbon dioxide, which entirely corroded unprotected bars in twenty-four hours. Some of the beams were loaded up to nearly the elastic limit of the steel, and no rust resulted after the beams had been subjected to the gases for over twelve days. However, when the beams were so loaded as to exceed the elastic limit of the steel, cracks were found which caused considerable corrosion. In a building properly constructed such cracks could not occur. The atmosphere in a modern roundhouse is such that a long time must elapse before enough corrosion can occur to equal the severity of the action of a few hours under the tests quoted.

As to excessive condensation on the underside of the roof during cold weather, this does not take place with a concrete roof when the house is properly heated, and in any event there is no more condensation than with a wooden roof.

But few roundhouse roofs have been built exclusively of reinforced concrete, none of which has been in use much over two years. As far as we can learn, the results have so far been entirely satisfactory. Those of which we know are as follows:

Grand Trunk—Mimico, near Toronto, Can.
Detroit and Toledo Shore Line—Toledo, O.
Denver and Rio Grande—Pueblo, Colo.
Denver and Rio Grande—Burnham, Colo., near Denver.
Atchison, Topeka and Santa Fe Railway Coast Lines—Bakersfield, Cal.
Atchison, Topeka and Santa Fe Railway Coast Lines—San Bernardino, Cal.
Atchison, Topeka and Santa Fe Railway Coast Lines—Richmond, Cal.
Atchison, Topeka and Santa Fe Railway Coast Lines—Williams, Ariz.
Union Railroad—Oak Hill, Pa., near Pittsburgh.

The recommendations included in this report concerning ventilation can be carried out with reinforced concrete.

In revising the table of comparative costs the committee has been conservative by endeavoring to avoid any chance of favoring the concrete roof in the costs of labor and material and in all items where there is any doubt.

In figuring insurance on the structure we have included that to be carried on the entire building and its equipment, and not alone on those parts of construction included in the table.

There has been ample demonstration of the fireproof qualities of reinforced concrete. It is well adapted for a roundhouse, and the demands upon it there are not essentially different from those it receives in other buildings. We would therefore recommend the following to replace conclusion (2):

"Under ordinary conditions the reinforced concrete roof is the most desirable for a roundhouse, because of the greater security afforded by it against interruption to traffic through damage to the roundhouse and its contents and because of its economy."

We would recommend the revision of conclusion (3) to read as follows:

"When the roof is of reinforced concrete the columns and roof beams should be of the same material."

We would recommend the revision of conclusion (4) by the addition of the word "considerably" after the word "cost" in the second line, making it read as follows:

"Reinforced concrete should be used for the walls only where special conditions reduce its cost considerably below that of brick or plain concrete and where plaster is not considered satisfactory."

The committee on iron and steel structures then submitted its report. Included with this was the report of the sub-committee on "length of flat spots on car wheels."

The special committee on uniform general contract forms came next.

Following this came the report on masonry. This was divided into many topics, the principal one being concrete construction in retaining walls and abutments. The conclusion reached was accepted by the convention.

The specifications for Portland cement concrete and reinforced concrete were discussed at considerable length, but referred back to the committee.

Special committees appointed reported progress.

The following officers were elected for the ensuing year:

President, William McNab, principal assistant engineer Grand Trunk.

First vice-president, L. C. Fritch, consulting engineer, Illinois Central.

Second vice-president, W. C. Cushing, chief engineer maintenance of way, Pennsylvania Lines, Southwest System.

Secretary, E. H. Fritch.

Treasurer, W. S. Dawley, chief engineer Missouri & North Arkansas.

Members of board of directors, three years each, A. H. Rudd, signal engineer Pennsylvania railroad, and A. W. Thompson, chief engineer maintenance of way, Baltimore & Ohio.

Following are some of the committees for the coming year:

Committee on Ballast.

John V. Hanna, chairman, chief engineer, Kansas City Terminal Railway.

C. A. Paquette, vice-chairman, assistant chief engineer, Cleveland, Cincinnati, Chicago and St. Louis.

O. P. Allee, assistant engineer, Kansas City Southern.

F. J. Bachelder, division engineer, Baltimore and Ohio.

W. J. Bergen, assistant to chief engineer, New York, Chicago and St. Louis.

J. G. Bloom, district engineer, Chicago, Rock Island and Pacific.

H. B. Dick, division engineer, Baltimore and Ohio.

J. B. Dickson, assistant to general manager, Erie.

W. H. Grant, manager of construction, Canadian Northern Ontario.

H. E. Hale, assistant engineer, Missouri Pacific.

G. D. Hicks, superintendent, Nashville, Chattanooga and St. Louis.

C. C. Hill, division engineer, Michigan Central.

S. A. Jordan, engineer maintenance of way, Baltimore and Ohio.

E. R. Lewis, division engineer, Michigan Central.

J. M. Meade, engineer E. G. D., Atchison, Topeka and Santa Fe.

C. S. Millard, engineer maintenance of way, Cleveland, Cincinnati, Chicago and St. Louis.

R. D. Starbuck, assistant chief engineer, Michigan Central.

F. J. Stinson, engineer maintenance of way, Grand Rapids and Indiana.

L. E. Walker Jr., roadmaster, Atchison, Topeka and Santa Fe.

S. N. Williams, professor of civil engineering, Cornell College, Mount Vernon, Iowa.

Committee on Buildings.

O. P. Chamberlain, chairman, chief engineer, Chicago and Illinois Western.

Maurice Coburn, vice-chairman, engineer maintenance of way, Vandalla Line.

George W. Andrews, inspector of maintenance, Baltimore and Ohio.

H. M. Cryder, St. Louis, Mo.

W. T. Dorrance, designing engineer, New York Central and Hudson River.

C. H. Fake, chief engineer, Mississippi River and Boone Terre.

P. F. Gentile, division engineer, Missouri Pacific.

E. N. Layfield, chief engineer, Chicago Terminal Transfer.

M. A. Long, architect, Baltimore and Ohio.

J. S. Metcalf, Chicago, Ill.

L. D. Smith, engineering department, Southern Pacific.

C. H. Stengel, designing engineer, Virginia.

Committee on Ties.

E. B. Cushing, chairman, Southern Pacific.

E. E. Hart, vice-chairman, chief engineer, New York, Chicago and St. Louis.

A. P. Dorley, division engineer, Missouri Pacific.

W. F. H. Finkle, tie and timber agent, Southern.

E. D. Jackson, assistant engineer, Baltimore and Ohio.

F. G. Jonah, terminal engineer, New Orleans Terminal.

H. C. Landon, engineer maintenance of way, Buffalo and Susquehanna.

A. F. Stewart, assistant chief engineer, Mackenzie-Mann Company, Toronto, Canada.

W. D. Taylor, chief engineer, Chicago and Alton.

A. W. Thompson, chief engineer maintenance of way, Baltimore and Ohio.

Hermann von Schrenk, supervisor of timber preservation, Rock Island, Chicago and Eastern Illinois, and Frisco.

G. H. Webb, chief engineer, Michigan Central.

H. S. Wilgus, engineer maintenance of way, Pittsburg, Shawmut and Northern.

Committee on Wooden Bridges and Trestles.

H. S. Jacoby, chairman, professor of bridge engineering, Cornell University.

James Keys, vice-chairman, assistant engineer, Union Pacific.

F. H. Bainbridge, resident engineer, Chicago and Northwestern.

W. S. Bouton, engineer of bridges, Baltimore and Ohio.

George A. Casseday, bridge engineer, Great Northern.

R. D. Coombs, structural engineer, Pennsylvania Tunnel

William Graham, assistant engineer, New York, New Haven and Hartford.

L. J. Hotchkiss, assistant bridge engineer, Chicago, Burlington and Quincy.

Hans Ibsen, bridge engineer, Michigan Central.

J. A. Lahmer, principal assistant engineer, Kansas City Southern Railway.

F. B. Scheetz, superintendent of bridges, Missouri Pacific.

W. F. Steffens, engineer of bridges and buildings, C. and O.

E. G. Taber, chief engineer, Spokane International.

G. R. Talcott, resident engineer, Georgia and Florida.

C. C. Wentworth, principal assistant engineer, Norfolk and Western.

P. H. Wilson, civil engineer, Devon, Pa.

Committee on Masonry.

A. O. Cunningham, chairman, chief engineer, Wabash.

W. H. Petersen, vice-chairman, bridge engineer, Chicago, Rock Island and Pacific.

W. J. Backes, chief engineer, Central New England.

G. J. Bell, division engineer, Atchison, Topeka and Santa Fe.

C. W. Boynton, inspecting engineer, Universal Portland Cement Company.

W. H. Chadbourn, chief engineer, Chicago Great Western.

W. W. Colpitts, chief engineer, Kansas City, Mexico and Orient.

T. L. Condon, consulting engineer, Chicago, Ill.

B. Douglas, tunnel engineer, Detroit River Tunnel.

L. N. Edwards, assistant engineer, Grand Trunk.

Richard L. Humphrey, consulting engineer, Philadelphia.

C. H. Moore, engineer of grade crossings, Erie.

Chicago to Build Subway.

CHICAGO, March 22.—Chicago expects to dig dirt in the initial part of its proposed \$50,000,000 subway within a year. This means the sale of a vast quantity of cement and building material. When the new council is organized next month, the first thing which the local transportation committee will take up will be the \$85,000 subway report which has just been presented by the engineering bureau to Ald. Milton J. Foreman, chairman of the committee. Even with the preliminary problems of the subway disposed of in this report, city officials believe that a year's work by the aldermen will be necessary before actual work will be started. Then will come the task of financing the vast undertaking.

The city already has a fund of nearly \$3,000,000 for subway work, which has been received as its share of the traction receipts. Before any work can be actually started this same source is expected to contribute another \$1,500,000 and the income will continue constantly while the work is going on. The engineers in their report recommend that work be done first on the Wabash Avenue subway, which will connect Chicago Avenue and Twenty-second Street. On account of curves, it will be slightly longer than the three miles between Chicago Avenue and Twenty-second Street. About 2 1/4 miles of the route will be four-track bore under Wabash Avenue and the remaining mile in pairs of two-track bores, making two miles of two-track bore.

There are 400 city squares in what is known as the initial subway district, bounded by the lake, Twenty-second Street, Halsted Street and Chicago Avenue. Relief from traffic congestion is expected to follow immediately after the opening of the first subway on Wabash Avenue.

"Through routing of trains, universal transfers and the many improvements in our transportation methods for which we have been hoping will then be possible," said Mr. Ericson. "It may be possible to remove the elevated loop structure, which now is such a bughear to the downtown district."

Track Elevation Bids.

BUFFALO, N. Y., March 19.—At the office of the Buffalo Grade Crossings Commission yesterday bids were opened for work at the Parkside, Colvin and Delaware Crossings of the Belt Line Railroad in this city. Nine bids were put in for the work, which includes masonry, excavation and paving. The bids are for stone and masonry and reinforced concrete, respectively, and are as follows: The Thomas Brown Contracting Company, stone and masonry, \$133,570.88, reinforced concrete, \$126,594.83; John Miller, stone and masonry, \$137,464.98, reinforced concrete, \$124,032.12; Mosier & Summers, stone and masonry, \$133,673.15, reinforced concrete, \$154,123.15; McArthur Brother & Company, stone and masonry, \$156,308.08, reinforced concrete, \$138,135.58; John Johnson, stone and masonry, \$126,472.98, reinforced concrete, \$120,863.93; Eastern Concrete Steel Company, stone and masonry, \$116,312.02, reinforced concrete, \$106,993.77; John F. Stabell, stone and masonry, \$111,609.80, reinforced concrete, \$102,827.40; H. P. Burgard Company, stone and masonry work, \$117,611.46, reinforced concrete, \$109,506.96.

George R. Cook also entered a bid to do the stone and masonry work for \$127,378.12 and the reinforced concrete work for \$113,729.22. The name of the successful bidder will be announced later.

CEMENT

Activity in Cement Circles.

The cement manufacturer is wearing a smile again, for while cement has not actually advanced in price, except in a few localities, there is enough encouragement in the situation to warrant it, and it will not be long before there will be an actual advance. Cement has been selling too low in many places. With the melting sun of spring the stocks will melt also and before very long the mills will be behind with their orders again.

In many instances large orders have been placed with instructions to ship as soon as the weather opens up.

From the amount of work actually on hand the demand will soon wipe out every surplus barrel of cement in stock. The prediction made by President E. M. Hagar, of the Universal Portland Cement Company, that cement would advance 5 cents for every inch that the grass grows, will likely come true.

Another Large Eastern Plant.

Interests closely allied with the Atlas Portland Cement Company, of New York, have purchased the entire plant of the Hudson Portland Cement Company at Greenport, near Hudson, N. Y., and will at once begin the work of complete reconstruction of the present property. This purchase includes the plant at the Hudson river, the railroad and all of the quarry land, comprising 1,400 acres. When the plant is completed it will have a capacity of 5,000 barrels per day or more. All the latest improved machinery known in cement making will be installed in this plant. The construction of the plant is in the hands of W. S. Tyler, who has a corps of competent assistants who have been brought from the Northampton mill of the Atlas company. The acquiring of this property and mill makes this the third one owned by the Atlas Company, and with the added capacity will augment their position as the largest manufacturers of Portland cement in the country. Being one of the pioneers in the manufacturing of cement, they are enabled by their experience to construct a mill which should be a model.

Lake Shore Portland Cement Company.

SANDUSKY, O., March 12.—The Lake Shore Portland Cement Company, incorporated under the laws of the State of Ohio at Columbus Tuesday with a capital stock of \$1,500,000, by G. G. Bennett, C. L. Engels and T. L. Paulson, of this city; G. A. Hogue, of Toledo, and George A. Philbrick, of Chicago, will take over and operate the mammoth plant near the intersection of the L. S. & M. S., Big Four, Lake Erie & Western and Pennsylvania Railroads, in the western part of the city, the contract for which, awarded to the Buckeye Realty and Construction Company, of this city, is about to be fulfilled. This means that the plant is nearing completion and that everything will be in readiness to begin work within a very short time. In addition to the factory lands and buildings in Sandusky, it has acquired and will operate marl beds in Margaretta township, this county, and valuable coal mining properties in Athens County, O. The new plant will no doubt be ready for the machinery in a few weeks. All of the buildings are up and new side tracks of the railroads have been laid. The new company will manufacture a fine grade of Portland cement.

Cement Company Reorganized.

LOS ANGELES, CAL., March 10.—The Victor Portland Cement Company has reorganized by electing new officers and directors. The officials of the company comprise business men of integrity and high standing in this community. The new officers are:

President, D. A. Mulvaine; first vice-president, Lycurgus Lindsay; second vice-president, F. E. Engstrum; third vice-president, Richard Lacey; secretary, J. G. Meachem; treasurer, Ora Monnette.

Fifteen directors were elected, as follows: Reese Llewellyn, F. E. Engstrum, F. H. B. Banks, L. L. Elliott, Edward Groenendyke, Ora Monnette, Richard Lacey, J. G. Meachem, C. C. Kohlmeier, J. J. Abramson, D. A. Mulvaine, Lycurgus Lindsay, Aman Moore, Harrison Albright, A. A. Baird.

This company is capitalized at \$1,000,000, and will build one of the most modern cement plants in the country at Victorville, in San Bernardino County. The plant will cost \$1,000,000. The deposits of the company are fourteen miles from Victorville, and work

has been commenced on a railroad running from Victorville to it. The road will cost \$500,000.

When the company was organized it announced that no money would be spent until assurance was at hand that the entire amount could be raised. Through Mr. Vincent of the Columbia Trust Company more than \$1,000,000 worth of stock has been sold, and it is said he will dispose of the remainder in a few weeks. He will leave for the East in a few days to close the negotiations.

Plant Changes Hands.

The Alpha Portland Cement Company has purchased the Buckhorn Portland Cement Company's plant at Manheim, W. Va., for \$500,000. The company will spend \$250,000 in improvements. When these improvements are completed, the plant will have a capacity of 3,000 barrels a day. The Alpha Portland Cement Company is running all of its mills and finds the demand increasing with the opening of the spring season.

Edison Reports Increase in Shipments.

NEW YORK, March 19.—The Edison Portland Cement Company report conditions very favorable for this season. They shipped in January of this year 41 per cent more than in January, 1908, and 65 per cent more in February than in February, 1908.

Conditions Warrant Slight Advance.

NEW YORK, N. Y., March 11.—W. P. Corbett, of the Alsen's American Cement Works, states that there will likely be a slight advance in the price of cement as conditions warrant it, but that the advance will not be sufficient to affect the dealer or the consumer to any appreciable extent.

Will Absorb Glens Falls.

It is practically certain that the Alpha Portland Cement Company will absorb the Glens Falls Portland Cement Company, one of the largest producers in New York state. A majority of the stockholders have given a 60-day option on their holdings to the Alpha company and within two months the property will be formally transferred.

The Lehigh Portland Cement Company reports recent advances in the price of Portland cement and increase in consumption, and says that the outlook for the industry is very bright.

Charles L. Johnson, general sales manager of the Castalia Portland Cement Company, sees in the market unusual promise and every evidence of returning prosperity. The plant is running full tilt and orders are coming in which show that the opening of the spring season has caused unwonted activity.

The California Portland Cement Company has been awarded the contract to supply 6,000 barrels of cement for the Los Angeles aqueduct at \$1.90 per barrel.

Within three or four months the Golden State Portland Cement Company, with offices in the Citizens' National Bank Building, Los Angeles, Cal., expects to have its big cement plant at Oro Grande turning out cement. Work on the buildings and machinery is progressing rapidly, and the first unit, with a capacity of 700 barrels a day, will be completed soon. The drier building has been completed, and the big drier was placed in position in it a few days ago. The kiln building is now in course of erection, and the brick for the interior of the smokestack will be delivered shortly.

The Pembina Portland Cement Company, Grand Forks, N. D., has changed its name to the Northern Cement and Plaster Company.

The Colossus Cement Company has been incorporated at Trenton, N. J., with a capital of \$4,000,000, to manufacture cement. Incorporators: William H. Williams, F. Winthrop White and Robert V. Kelly, all of Jersey City.

The Sandusky Portland Cement Company has recently installed two additional kilns at its Bay Bridge plant, each 8x100 feet, and is also installing another kiln of the same size at the Dixon plant.

A charter has been issued to the Prairie Portland Cement Company, of Nowata, Okla. The incorporators are: Thomas J. McCormick and James Brenne-mann of La Salle, Ill.; Otto Proless, of Kansas City, Mo.; J. E. Curtis and O. Gerlach, of Iola, Kan. The capital stock is \$1,700,000.

Contracts have been awarded for furnishing 104,000 barrels of Portland cement for various projects of the Reclamation Service, exclusive of the Pacific division.



Chicago Chemists Meet

The monthly meeting of the Chicago section of the American Chemical Society was held at the rooms of the Chicago Drug Club on February 19. The Chicago section consists of about 400 of the representative chemists of Chicago and its suburbs. This society, of which W. A. Converse, Dearborn Chemical Company, is chairman; Gustav Thurnauer, Aurora Metal Company, is vice-president; A. L. Nehls, chemist of the State Food Commission laboratory, is secretary, and A. Lowenstein, chemist of Nelson Morris & Co., is treasurer, meets every month for the purpose of bringing about a closer intimacy between its members as well as to hear the expert opinions of some of its fellow members. The meeting of February 19 was accorded by all to be one of the most interesting ever held and the large number who attended were justly proud of themselves for not having missed it. After the usual order of business, the audience was treated to an address on "The Sources and Manufacture of Plaster" by Mr. Birdsey, of the United States Gypsum Company. Mr. Birdsey illustrated his excellent and entertaining paper with a very fine collection of lantern slides, showing in rapid succession the different formations of the mine; the different methods of mining; the types of the formations; the mill necessary to finish the product, and a vast number of the crude materials. As evidenced by the great interest taken in his address, the subject was most happily chosen and many were the compliments showered upon Mr. Birdsey by the chemists, who clearly realized the vastness and importance of the subject.

Employing Plasterers Meet

NEW YORK, March 11.—The regular semi-monthly meeting of the International Employing Plasterers' Association No. 1 was held on March 10. Secretary Benjamin J. Carr, Jr., writes us that it was the largest meeting since the association was organized. There were fifty-five members present and ten new firms were admitted to membership.

There is to be a joint committee meeting between committees representing the Employing Plasterers' Association and local No. 43 and local No. 216 of the journeymen, which will draft an agreement for the mutual benefit of all concerned. There is to be another meeting between committees representing this association and the Material Men's Association, which will be for the promotion of the plastering trade in New York.

Necessity for Associations.

The success of the Employing Plasterers' Associations in New York and Brooklyn suggests to those engaged in the business in other cities the necessity of, or rather the benefits to be gained by, similar organization. In Cincinnati, New Orleans and Chicago there are associations among the employers to deal principally with unions when trouble is inevitable. No definite plan of action is carried on by these organizations, as each is working individually and independently of the other. Yet the interests of the plastering contractor in each city and town are identical.

When we hear of the monthly meetings of the New York local associations and the vast amount of good work they have and are doing, does it not occur to the employer that this remedy can be applied right in his own town by association and co-operation, thus doing away to a great extent with those annoyances which creep unbidden into each one's business? Nearly every industry is organized, and there is no man living who has not been benefited by rubbing shoulders with his fellow craftsmen.

The exchange of ideas broadens the worker. No two businesses are conducted on the same line, and it is those little details which are to be picked up by contact with our fellowman, that, applied to our own particular business, can be worked out and made to pay large dividends.

The manufacturers of plaster are organized; the retailers of supplies are organized; the employees are organized, and probably more strongly than any other branch of the industry; yet the man who is the center of the whole business, around whom the business revolves, the producer of trade and the one upon whom each of the others depends, stands idly by and lets the march of progress go past in all its glory.

Is every future plastering contract to be cut by competitive bidding until there is no profit in the job for the lucky (?) bidder? Not if we expect to see the plastering business grow. Not if a broader field is to be developed and art worked out in plastic materials and interior ornamentation.

A hundred objections and criticisms can be made about the industry, but to arrive at the solution is the question.

Plaster Contract Awarded.

WAUSAU, WIS., March 10.—William Whippler and Albert Saindon, plaster contractors, have secured the contract to plaster the remodeled Riverside Hospital building, transformed into a flat, and the remodeled dwelling. The whole job contains between 5,000 and 6,000 square yards. They expect to have the work done early next month.

Mixing Plant Established.

DALLAS, TEX., March 15.—The Texas Cement, Plaster and Supply Company is another new manufacturing establishment for Dallas. Articles of incorporation were filed at Austin for the new firm. The plant and principal place of business will be in this city, with branch offices in Houston, El Paso, Fort Worth, Sherman and San Antonio. The capital stock is \$40,000 and the officers and stockholders are: H. A. Shannon, president; J. R. Neece, vice-president; Dr. J. H. Overton, secretary-treasurer.

The new company will manufacture and furnish everything in the building line, its principal product being the manufacture from Texas material of hard wall plaster, wood fiber plaster and plaster board. The plant will be located in East Dallas. Machinery costing \$16,000 will be installed at once and the plant will be ready to begin operation within thirty days.

A Flax Straw Fiber Plaster.

GRAND FORKS, N. D., March 10.—The Northern Cement and Plaster Company have a plaster mill here and manufacture a flax straw fiber plaster. It is made of hydraulic cement and shredded flax straw. Owing to the toughness of the flax straw binder, it works very rich. North Dakota is a large producer of flax straw, so it will be easily secured.

Mixing Plant at Memphis.

MEMPHIS, TENN., March 19.—Application for a charter was filed by the National Plaster and Material Company. The capitalization is \$20,000 and the incorporators of the company are: E. D. Myers, of Canton, Ohio; J. E. Walden, J. W. Howard, E. M. Forbes and R. P. Rowley, of Memphis. The purpose of the company is to manufacture and deal in wood fiber plaster, hair fiber plaster, sanded plaster, plaster boards, gypsite shingles, fire clay and other kindred materials.

The company will construct a plant on the Southern Railway with a capacity of twenty-five tons of plaster per day, and also an equipment for refining fire clay and drying sands. They will also make a specialty of the new fireproof materials which are now being manufactured in other sections of the country and are growing in demand, as they are more satisfactory in every way than the old style of goods and get a cheaper rate of insurance. Memphis affords an ideal location for a manufacturing industry of this kind, being near the fields where they obtain a great deal of the raw material.

They will also manufacture a wood fiber. E. M. Forbes, who will be president and general manager, has had a good deal of experience in the manufacture of these goods in several sections of the country. R. P. Rowley will be secretary and treasurer. The company will open offices at once.

SAND-LIME BRICK

A Sand Lime Brick Opera House.

Thanks to the enterprise of Oscar Hammerstein, Philadelphia may now boast of grand opera of as good a quality as that enjoyed by New Yorkers. The splendid new opera house which America's most prolific theater builder has erected in an incredibly short space of time at the corner of Broad and Poplar Streets was opened on the night of November 17 with the gala performance of "Carmen," with the same company that appears at the Manhattan Opera House in New York.

The new edifice, which is one of the largest and most modern in the world devoted to operatic productions, was completed in exactly five months and seventeen days in spite of innumerable obstacles and labor troubles. On April 1 last workmen began to tear down the old Harrah mansion, which occupied the site, and work on the foundations began on June 1, the erection of the building being under the direct supervision of Arthur Hammerstein, the son of the impresario. The architect is William H. McElfatrik, who designed the Manhattan Opera House.

The new opera house has a total seating capacity of 4,100. It is constructed of white silicate brick and stone, the style of architecture being of the Louis XVI period. It has a frontage on Broad Street of 240 feet and extends 160 feet on Poplar Street, where the main entrances are situated. The greatest height of the building, excepting the stage, is 160 feet.

The color scheme of the interior furnishings is dark red, relieved by green and gold. The auditorium is carpeted with dark red velvet. Six glistening pillars of Pavanazza marble, situated to the right and left of the entrance into the auditorium, lead to the grand foyer. The chief architectural feature of the house is the arrangement of the grand tier boxes and the special promenade.

Three sides of the theater are built of Penbryn brick made by the International Sand-Lime Brick and Machinery Company's Division Method, and the

back of the stage is also faced with these brick. They were also used for interior finish in many places. This magnificent structure from a distance has the appearance of being built of white marble. It is regarded as the finest opera house in the world. It has done more to establish the sand-lime brick on a firm basis than any other building.

Receives Contract for Sand-Lime Brick Plant

The J. R. Alsing Engineering Company, 136 Liberty Street, New York City, recently received the contract from the Progress Brick Company, of Schenectady, to furnish and erect at Setauket, L. I., the entire sand-lime brick plant, including the buildings, which will be of steel construction. They are further negotiating with several other concerns, one in Texas and the other on the Pacific Coast, to furnish plants for the manufacture of sand-lime brick.

Since the last convention of the sand-lime brick manufacturers in Washington the J. R. Alsing Engineering Company has received a number of inquiries for prices on tube mills and crushing rolls. It seems that the successful working of the tube mills in the most modern plants, of which one is situated in Washington, D. C., and the other in Penbryn, N. J., begin to show the results. They expect a large business with the sand-lime brick trade in the future.

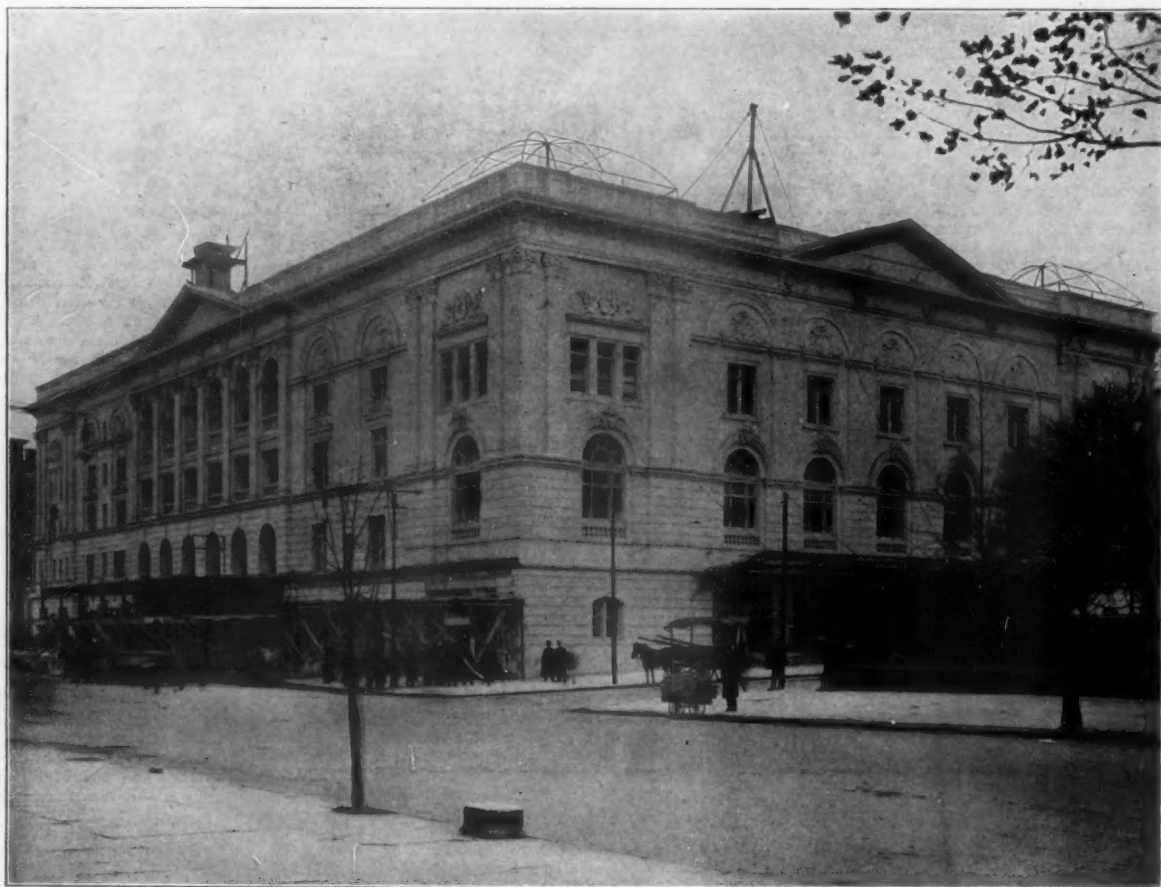
Erecting New Plant.

GARY, IND., March 1.—Work has begun on the new \$75,000 plant of the Gary Granite and Brick Company, located at Highland, Ind., a few miles from this place. The company has purchased ten acres of land and will manufacture sand-lime and crushed granite bricks. About one hundred men will be employed.

Will Start Plant Soon.

MARINETTE, WIS., March 1.—The Menominee Sand-Lime Brick Company is preparing to start its plant as soon as the weather has moderated slightly so as to allow an easy excavation of the materials.

The factory finished its run this winter with the stock shed completely filled, but the heavy winter building activities have used practically all of the stock on hand. The many building contracts calling for the brick will give the plant a steady run throughout the coming summer. Some of the principal buildings in this vicinity have used the brick in construction work.



NEW HAMMERSTEIN OPERA HOUSE IN PHILADELPHIA.



National Lime Manufacturers' Association

Meets Semi-Annually.

OFFICERS.

William E. Carson, Riverton, Va. President
Charles Weller, Milwaukee, Wis. 1st Vice-Pres.
Walter S. Sheldon, Hamburg, N. J. 2nd Vice-Pres.
M. H. Deely, Pittsfield, Mass. 3rd Vice-Pres.
C. W. S. Cobb, St. Louis, Mo. Treasurer

EXECUTIVE COMMITTEE.

William E. Carson, ex-officio; Chas. Warner, Wilmington, Del.; T. E. Fleischer, Sheboygan, Wis.

BIG CONSOLIDATION.

St. Louis Becomes One of the Largest Lime Centers.

The Glencoe Lime & Cement Company, of St. Louis, under a new charter recently issued, capitalized at \$1,100,000, has become, through a deal just closed, one of the largest individual manufacturers and distributors of lime and quarry products in the United States. The company's original capital was \$50,000.

The incorporation under a new charter was rendered necessary because of the purchase of several plants engaged in the manufacture of lime. One of the objects of the union is to improve the facilities for manufacturing and distributing the products of the combined plants. Also to effect economies in the administration of the business and in handling the company's products.

The manufacturing and distributing plants taken over were the following: The Chas. W. Goetz Lime & Cement Company, the Colorado Lime Company, the Banner Lime & Cement Company, the lime department of the Hunkins-Willis Lime & Cement Company and the lime department of the Union Sand & Material Company.

The manufacturing plants of the newly organized company are all situated within a radius of twenty-five miles of St. Louis, at the following places: Glencoe, Glen Park, Kimswick, Byers, Minke, Port Royal and Pillman. They comprise thirty-six kilns and 1,800 acres of limestone property. Some of these plants have been in operation for more than thirty years.

The several properties are fully equipped with kilns,



F. P. HUNKINS, FIRST VICE-PRESIDENT, GLENCOE LIME & CEMENT COMPANY.

stone crushers, steam power, tramways, etc., and provided with dwelling houses for the employees. The plants are modern and have exceptional railroad and switching facilities. The proprietors, however, intend to make some improvements and bring the various plants up to date as rapidly as may be required. An idea of some of these plants may be had from the illustrations given in this issue.

The new company will practically control the desirable black limestone suitable for commercial purposes adjacent to railroads. The stone runs very high in carbonate of lime, is cool working and a great sand-carrier. This lime product is equal in all respects to any produced in the country.

The following analysis speaks for itself:

Office of Regis Chauvenet & Brother,
Analytical Chemists and Assayers,
708 Pine St.
St. Louis, June 7, 1908.

Glencoe Lime & Cement Company.

Gentlemen: Sample of Glencoe Lime submitted for analysis results as follows:

Moisture and carbonic acid.....	5.15
Silicia	0.05
Oxide of iron	2.00
Magnesia	0.28
Lime—as CaO.....	92.52
	100.00

This is a remarkably pure lime, in which the total impurities are only 2.33 per cent.

Respectfully,

Regis Chauvenet & Brother.

The lime produced by this company has been used exclusively by the city of St. Louis in the water department at the clarifying basins. The company has a four-year contract to furnish 1,000 bushels per day for this purpose. The crushed limestone products controlled by it are used generally by all the iron and steel manufacturing plants in St. Louis territory.

The company will sell its product to consumers in St. Louis and vicinity. It has ten distributing depots in different sections of the city, and operates sixty teams in connection with the same. In addition to lime, it will handle Portland cement, hard wall plaster and deal in other building materials. For the present, lime will be sold principally in bulk, as heretofore, but it is proposed to extend the barrel trade.

The officers of the newly organized company are as follows: President, C. W. S. Cobb; first vice-president, F. P. Hunkins; second vice-president, Geo. P. Johannes; secretary and treasurer, E. S. Healey; manager, Phil J. Dauernheim; superintendent, C. W. Goetz.

An important fact respecting this company, and one which insures the successful conduct of its business, is that all the officers have had long experience in this line, and are well and favorably known to the trade, contractors and architects.

The company has engaged a suite of ten rooms on the ninth floor of the new Syndicate Trust Building, one of the largest and finest office buildings in the business section of St. Louis, and the company proposes to make these quarters one of the handsomest office suites in the city.

Committee Has Done Good Work.

The special committee appointed by the National Lime Manufacturers' Association to meet the Eastern Agricultural Experiment Station directors report through their chairman, Walter S. Sheldon, of Hamburg, N. J., that the meeting was held with the valuation committee, at the Adams House, Boston, Mass., March 3, and that a very satisfactory understanding was arrived at in regard to the standardization of limes for fertilization purposes, which will be submitted in full to the National Lime Manufacturers' Association at the next meeting.

Expecting Speedy Revival.

While the dull conditions still continue in the lime business, owing to the waiting period just before activities begin, there is a pronounced feeling among the producers and handlers of lime that there will be plenty of business very soon. The building operations all ready to start the season with are largely in advance of anything we have had for a number of years. In fifty of the principal cities the increase is more than 50 per cent over last year. Still everybody will look at those tariff jugglers down at Washington.

Hydrate Business Flourishing.

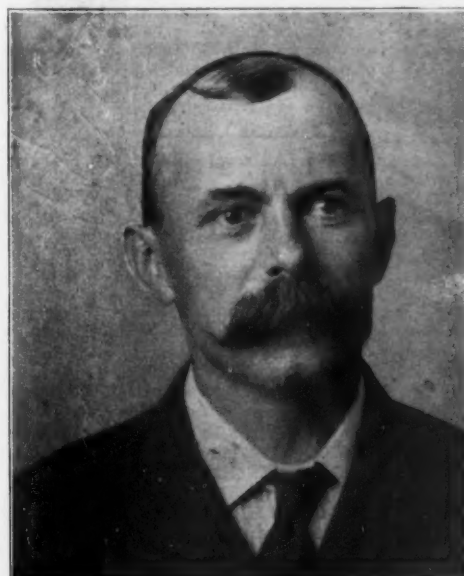
The Kelly Island Lime and Transport Company are building a hydrating plant at White Rock, near Toledo, Ohio. The plant will be equipped with the Kritzer system, designed and installed by the Kritzer Company of Chicago. This addition to their hydrating business was made necessary by the increased and growing demand for "Tiger" brand of hydrate. It speaks volumes for the hydrated lime business, and in spite of prevailing conditions the market for this product has steadily grown. The Kelly Island Company's confidence in the future increased demand for hydrate is fully demonstrated by the increasing output. Each month sees a greater field for hydrated lime, and as the users become better acquainted with its superiority the output of concerns manufacturing hydrate will increase with the demand. New uses will be created and a greater field than ever the lime manufacturers expected will be developed.

Valuable Lime-Stone Property Bought.

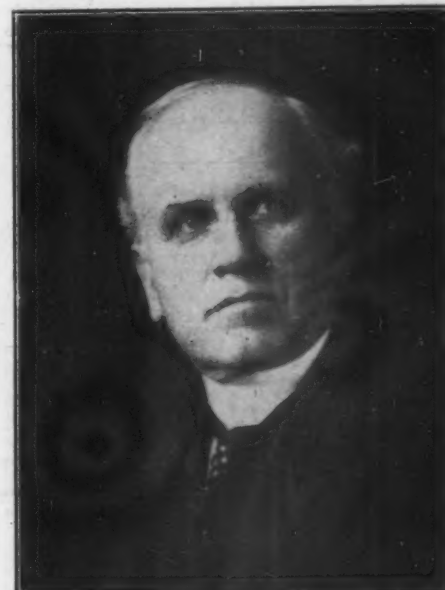
The Merion Lime and Stone Company, Norristown, Pa., has purchased 110 acres of valuable limestone property at Rambo Station, Montgomery County, Pa., and has just opened a complete quarry for the manufacture of building and chemical lime, also for the shipment of fluxing stone. The officers are: H. A. Gawthrop, A. Scheidt, J. M. Dettra.

Removal of Office.

The Ohio and Western Lime Company announce that their Toledo office will hereafter be discontinued, and customers are requested to send all future correspondence to the main office at Huntington, Ind. The same prompt and efficient service that has characterized the conduct of the company's business will be continued.



PHIL J. DAUERNHEIM, MANAGER, GLENCOE LIME & CEMENT COMPANY.



C. W. S. COBB, PRESIDENT, GLENCOE LIME & CEMENT COMPANY.

ROCK PRODUCTS



E. S. HEALY, SECRETARY AND TREASURER, GLENCOE LIME & CEMENT COMPANY.

Large Warehouse Sold.

The Reading Lime Company, Reading, Pa., has purchased the four-story warehouse building owned by David C. Geiger, the consideration being \$18,500. The Reading Lime Company is making extensive improvements, among which are large cement and plaster bins along the railroad siding. The building is already equipped with the most modern conveniences, and combined with the improvements will be up-to-date in every respect.

Kiln Shed Destroyed.

The large kiln of the Anniston Lime and Stone Company, Cobb City, Ala., was burned recently, entailing a total loss of several thousand dollars. The fire will necessitate a shutdown of several weeks, throwing many men out of employment.

Appeal to Supreme Court.

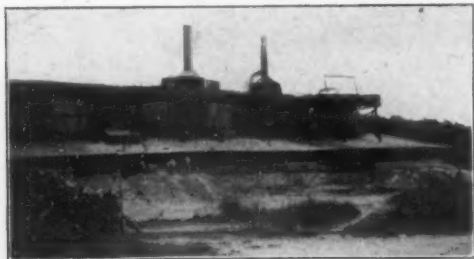
The Bethel & Redding Lime Company, Bridgeport, Conn., in its contention against the New York, New Haven & Hartford Railroad Company against abolishing a branch road taking away a siding to its plant, has taken the case to the Supreme Court. The appeal taken by the Redding Lime Company from an order passed by the commissioners, eliminating a branch of the road entirely, was heard before Judge Gager, who dismissed the appeal. Thereupon Attorneys Booth and Alexander took an appeal to the Supreme Court.

Most Complete Lime Plant.

The Gager Lime and Manufacturing Company, Chattanooga, Tenn., has in its plant at Sherwood, Tenn., a very complete lime plant. Everything essential is included; steel kilns lined with firebrick, concrete sheds, heavy steel gravity tramways, the whole being equipped with the most modern labor-saving machinery. The quarries owned by the company show an unbroken depth of 300 feet of white oolitic limestone. The officers of the company are B. Gager, president; M. P. Kenney, secretary and treasurer.

Air System Installed.

The Eagle Point Lime Works, Eagle Point, Ia., have further modernized their plant by the installation of a complete system of compressed air for drilling and blasting purposes in their quarries. The system works perfectly, and will enable the concern to accomplish about twice as much work as formerly.



GLENCOE LIME & CEMENT COMPANY'S PLANT AT GLEN PARK, MO.

Will Establish Crushing Plant.

A large crushing plant is to be located on the T. & O. C. Railroad, north of the State Hospital, by the Columbus Limestone Company, of Columbus, O., where the company has secured a tract of more than 250 acres of land entirely underlaid with limestone. The new crushing plant will be located not far from the old state quarries.

Quarry Company is Incorporated.

KANKAKEE, ILL., March 9.—Articles of incorporation for the West Side Quarries Company were recorded recently in the office of the circuit clerk. The capital stock is \$8,000, divided among T. A. Kerr, president; Clyde T. Dyer, secretary-treasurer, and W. W. Bird.

Has Changed Hands.

MARQUETTE, MICH., March 9.—The rock crushing plant at Harvey, which was recently built and put into operation by F. B. Spear & Sons, has been sold to the Marquette Stone Company. This company was incorporated under the state laws about a week ago. The Spears own the controlling interest in the company, but others hold stock in it.

The new company expects to manufacture crushed rock, especially for road building purposes, and will place the product of the plant on sale in the open market. The plant has been completed for several weeks and a few men have been working all winter, opening up the quarry, with the result that the bins



C. W. GOETZ, SUPERINTENDENT, GLENCOE LIME & CEMENT COMPANY.

are now partly filled with crushed rock. The capacity of the machinery now in operation is from 300 to 400 tons of rock a day, depending on the size to which it is crushed. The machinery consists of two Gates crushers and an Ingersoll-Rand air compressor capable of operating two air drills. The power is furnished by the city power and lighting plant, the machinery being driven by three motors.

Samples of the rock manufactured were recently sent to the good roads bureau at Washington, and the government officials reported that the rock was of excellent quality for road building purposes, being hard, tough and possessing excellent cementing qualities.

Secures Large Order for Crushing Stone.

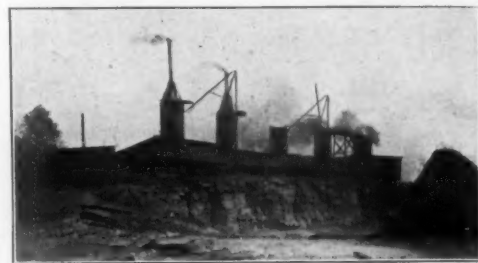
COLUMBIA, S. C., March 15.—Capt. R. G. Ross, who has been filling from his Lexington quarries a large order for crushed stone to be used in the construction of training walls and jetties at Jacksonville and Miami, has landed another notable contract, calling for 45,000 tons of stone. Most of the stone will come from the quarries on the Congaree, opposite Columbia.

New Concern to Operate Stone Crusher.

The Silverdale Crusher Company is the title of a new concern that will build and operate a stone-crushing plant, sawmill and terra cotta works at Pool Hill, on the Colebrookdale Railroad, near Pottstown, Pa.

Select Location for Crushing Plant.

TACOMA, WASH., March 1.—Kapowsin has practically been decided upon by the commissioners as the site for the location of a crushing plant. The order for the Austin crusher under the contract awarded to the Hunt-Mottet Company has already been sent to the



GLENCOE LIME & CEMENT COMPANY'S PLANT AT GLEN PARK, MO.

manufacturers in Chicago, and it is expected that the crusher will arrive within sixty days. The plant will be installed as soon as the machinery arrives, and when it is in operation the output will be used in the construction of macadam roads throughout the country.

Plant Changes Hands.

The Canal Quarries Company, which lately purchased the Ashby crushed stone plant at Lockport, N. Y., has put the plant in first-class shape and expect to be ready for operation by April 15. The company will build large storage bins on the barge canal with capacity of 1,000 yards, together with a gravity system to convey the crushed stone to these bins. The entire equipment will be modern and when finished the mill will be first-class in every way.

Purchase More Land for Quarry Purposes.

J. F. Byers, of Maywood, Kan., has recently purchased twenty acres from the Santa Fe Investment Company and will open a quarry thereon. The rock underlying the ground is especially good for street work and is in a line with the city quarry, which lies a short distance east.

Will Start Quarries.

ALBURTIS, PA., March 11.—W. S. D. Schmoyer & Co.'s limestone quarries at Alburtis, which have been idle over a year, will be started up as soon as repairs are made. Calvin Schoch, superintendent of the quarries, has a number of men at work cleaning up and expects to be ready for a resumption in about a week. The crushed material will be shipped to Catasauqua and Hokendauqua. The resumption will give employment to about twenty men.

Will Also Sell Crushed Stone.

SPRINGFIELD, O., March 1.—Carrying out the project of installing an up-to-date stone crusher near Osborn, the Springfield Coal and Ice Company increased its capital stock February 26 from \$100,000 to \$150,000. It has one of the best quarries in the state. The rock is called Clinton limestone and is considered a durable material for road building.

The company has ordered its machinery and the Big Four Railway Company is putting in a switch track to the quarries. The Springfield Coal and Ice Company plans to be ready to furnish cities and counties with crushed stone in the spring.

Will Erect New Crusher.

The stone quarry which was formerly managed by the Rhine Stone Company, now owned by the Wagner Company, of Sandusky, O., is being greatly enlarged and all of the old machinery has been overhauled and a much larger crusher plant will be erected soon.

At the annual meeting of F. W. Wait Lime Company, Glens Falls, N. Y., the following officers were elected: F. W. Wait, president; T. L. Coolidge, vice-president; H. J. Russell, secretary; S. B. Goodman, treasurer.

The business of the New England Lime Company, Zylonite, Mass., has increased to such an extent that it has been found necessary to provide a new rotary kiln.

The Massachusetts Lime Company, Pittsfield, Mass., has been incorporated; capital, \$30,000; E. E. Minor, A. M. Turner, N. Canaan, F. H. Wright are the incorporators.

The Hudson River Lime Company, Brooklyn, N. Y., incorporated; capital, \$35,000; W. M. Young, A. H. Young and M. E. Young.

Cement Users at Minneapolis.

(Continued from page 44.)

system up to the possibilities afforded by the big drains being constructed by the sewerage commission. New York; Norman D. Fraser, Chicago; L. V. Thayer, Minneapolis; C. W. Boynton, Chicago; W. D. Hogan, Ashland, Wis.; Homer B. Hasbrouck, Mason City, Ia.

A very pretty sentiment took form in the presentation to Misses Helen Casey, of St. Paul; Lillie Duffnell and Helen Rohrbach, of Minneapolis, with brooches as a slight token of the association's appreciation of their effective work during the preparation of the cement show. E. S. McGowan, of Minneapolis, was presented with a handsome pin in recognition of his valuable services.

The opening day was Minneapolis Day, the second day Contractors' and Builders' Day and the last day Architects' Day.

George C. Bartlett, of the Western Portland Cement Company, was among the prominent cement men at the convention.

J. H. Hall, of the Minnesota Linseed Oil Paint Company, of Minneapolis, was an interested visitor to the show. They manufacture Minnesota cement and concrete stain filler and waterproof paint.

Percy Wilson, the secretary of the National Association of Cement Manufacturers, was on hand with his stereopticon and views.

As A Layman Sees the Cement Show.

The following notes were made, unsolicited, by an interested visitor at the big cement show, recently held at Minneapolis, which is illustrative of the trend of the business as touching the public view. Aside from many sterling qualities of this show, one is surprised, pleased, educated and convinced of the present and future excellency of cement in its multitudinous and practical uses.

The amateur says: What particularly impressed me at the big cement show at the Armory was the fact that I was actually seeing demonstrated many possibilities in its various uses of a product that I was wont to think as being somewhat commonplace and of simple utility, merely the ingredient to stick bricks together.

Wonder and interest increased, as these possibilities were opened up, and from a material rude and simple seemingly I was soon keenly aware of the importance, practicality and durability of a product that even adds to the strength, life and dignity of the building material, even becoming a sterling material itself.

The material! the possibilities! Why, I had never thought of such things before—simply had never occurred to me. But to go back to the beginning—the entrance: Why, even the busy attendants at the wickets seemed to have a charm of mystery about them, and I readily pushed through the crowd to the nearest booth in a fever of expectancy. Here was a man holding forth learnedly about the durability and tensile strength of a slab of what appeared to be very fine marble, but you get a horrible jolt when informed that it was cement, nothing but cement.

Here is a machine with what looks like a series of pile drivers. The man pours a mold full of cement, starts the pile driver which pounds the cement firmly into the molds, which are then removed, and you have Doric column, caps and bases, Greek frescoes, or, in fact, as many forms of architectural decoration as the mind of man can suggest. All you need is the proper mold and cement.

Nearby is a booth wherein a man is showing stereopticon views of the plant where they quarry limestone, burn it with clay, and other things, grind up the clinkers and produce Portland cement.

In this plant there are employed 650 men and boys. The town thrives on the plant, which is a good-sized little railroad center in itself, three main crews being kept busy all the time loading and hauling the product of this gigantic industry. Thousands of barrels of cement are made here daily, but they can't produce it fast enough to supply the ever-increasing demand.

When all this had been explained to the crowd, an announcer through his megaphone had requested us to crowd over that way and hear the lecture on "art furniture." We were in condition to believe almost anything of this wonderful product. We saw flower pots, Corinthian columns, brick, tile—everything in the builder's line and in other lines—all made of cement.

At this juncture a friend exclaimed, "Great Scott! They'll be making spring suits and director's gowns of this mud next." To which we nodded assent, and said he, "Pretty soon a man'll wake up in the morning in his cement house, get out of his cement bed, bathe in his cement tub, dress, sit down in a cement chair at the cement table and—" "Reach for a cement biscuit?" we interposed. "We had some at our house this morning," said my friend. Poor fellow, he just got married.

A man whom my friend knew handed out a box of cigars and asked us to wait a few minutes and hear the chemist of his house explain the properties of cement, its adhesiveness, etc. This was all very instructive, but we couldn't understand a word, for just then the band began to play.

Yes, the band discoursed sweet music, and we heard rumors of a smoker and a sociable later, but after the revelations of the evening we decided to forego that. We decided to go home, which we did full of enthusiasm—our pockets bulging with cement literature and cement paperweights.

The convention was an education in an industry which is but little understood, but that is ramifying into every avenue of commercialism, for surely the day will come when cement will be as bread in the "timber famine," having won its high rank, even supplanting lumber as a building material long before the timber supply is exhausted.

INTERSTATE CEMENT TILE MANUFACTURERS' ASSOCIATION.

The Interstate Cement Tile Manufacturers' Association held its annual convention in conjunction with

the annual convention of the Northwestern Cement Products' Association.

The attendance was good, and much interest was shown in the meetings. Prominent members of the Cement Products Association participated in the meetings of the tile men, and the tile men were also much in evidence at the general convention.

The first meeting of the association was on Monday evening, March 1, in the rooms of the Minneapolis Builders' and Traders' Exchange. President Martin T. Roche, of the Northwestern Cement Products' Association, delivered an address of welcome to the tile association, and F. A. B. Patterson, of Fairmont, Minn., replied in behalf of the latter. L. L. Bingham, acting president of the cement tile association, delivered the annual president's address. Following this the officers' reports and regular routine business was transacted, and the officers for next year were elected. The result of these elections follows:

L. L. Bingham, Estherville, Ia., president.
D. G. Keith, Ceylon, Minn., vice-president.
Geo. F. Keil, Sherburn, Minn., treasurer, reelected.
Chas. E. Sims, Worthington, Minn., secretary.
Resolutions were passed on the death of H. C. Shadbolt, president of the association.

On Tuesday, March 2, two sessions were held in the Armory, devoted to the presentation and discussion of papers on cement tile. The keynote of the meetings was the maintenance of a high standard in cement tile manufacture, and an improvement of the methods and product wherever possible. The subjects discussed were:

"Interesting the Consumer, and Best Methods of Handling the Sales Department," D. G. Keith, Ceylon, Minn.

"The Cement Tile Plant Proper," C. D. Doolittle, Webster City, Ia.

"The Manufacturing of Cement Tile," P. H. Atwood, Armstrong, Ia.

"The Shipping End of the Cement Tile Business," G. F. Keil, Sherburn, Minn.

"Plant Equipment for Reducing Labor Cost," Chas. E. Sims, Worthington, Minn.

"The Steam Process for Curing Cement Tile," A. B. Elliott, Turin, Ia.

"How Shall We Combat the Unjust Attacks on Cement Tile?" L. L. Bingham, Estherville, Ia.

"The Manufacture of Larger Sizes of Cement Tile by Machinery," J. H. Whelp, Bancroft, Ia.

"Observations on the Manufacture and Use of Cement Drain Tile," C. W. Boynton, Chicago, Ill.

"Speed of Manufacture and Quality of Product," W. J. McCracken, Paulina, Ia.

"Efficiency of Large Cars for Cement Tile Factory," Robert Heilman, Marshall, Minn.

Richard L. Humphrey also addressed the meeting informally on important points in general concrete work.

After the adjournment of the tile convention the tile men devoted their time to the general cement products' convention and to the exhibits on the Armory floor.

Louisville Correspondence.

(Continued from page 27.)

President Horner, of the Kosmos Portland Cement Company, stated to a ROCK PRODUCTS representative that the Kosmosdale mills of the company were in operation February 1, practically all of the fireproof buildings having been completed. He said that the annual output of the plant would be close to half a million barrels, and added that orders are already being received for delivery after April 1. C. M. Timmons, sales manager, is out on the road looking after business and making arrangements which were interrupted by the fire which partly destroyed the plant last September.

Burrell & Walker reported that business is poor, that prospects are poor and that everything is in a regular mess. Bad weather, business depression and things in general were referred to, as the contributory causes.

The Atlas Wall Plaster Company entered a cheerful report as to conditions, saying that orders have been coming in in volume. There is a lot of building going on, small houses, apartment houses and large residences all being in process of construction. Prospects are good and the wall plaster industry is feeling fine, they testified.

Bannon's sewer pipe plant is doing a good deal of business on account of the work in connection with the smaller lateral sewers being constructed by the board of public works to bring the general sewerage

The Louisville Fire Brick Works has practically completed rebuilding its plant, which was destroyed

over a month ago by fire. All but one of its sheds have been restored, and the plant is now running full blast. It continued to turn out bricks all the time, with a temporary plant, and was thus not so badly crippled as it would have been had it been compelled to shut down altogether. There will probably be an increased capacity provided with the addition of the shed now under construction, so that the daily output should be about 60,000 bricks. Business generally is good, said Mr. Parker, of the company, and though no exceedingly large orders are being received, the outlook is favorable.

The Central Concrete Construction Company has just been awarded a contract for the construction of a concrete wall around the rear of Cave Hill Cemetery. The wall will be 3,000 feet long and will cost \$15,000. More than 1,500 cubic yards of concrete will be used in its construction. As an evidence of the progress of concrete, the specifications, which at first provided a coping of terra cotta, were later changed so that the coping, as well as the rest of the wall, is to be of concrete. Many residences are to be erected of concrete this year, according to members of the company, and they are figuring on a lot of work.

The Southern Roofing & Paving Company reported that since the first of March things have been quieting down in the roofing line, though the paving and concrete end is beginning to open up a little. It was a rushing business in roofing for a while, owing to the heavy rains. There was a good deal of repair work, though not many new roofs were ordered.

Jacob Ohlgschlager, of the National Concrete Construction Company, seemed to be fairly well pleased with the situation, and said that as soon as spring opens up there will be a lot doing. The company has finished the Exchange Building at Evansville, which it has been working on since last fall, but still has one more building there to complete. The company has bid on several large pieces of work in Louisville, and Mr. Ohlgschlager considers the prospects good.

S. F. Troxell reported a good many inquiries, indicating that business will be fairly heavy this spring. Asbestos coverings for steam pipes and boilers are in demand. The biggest roofing job done recently by the company was putting a roof of 300 squares on the grandstand of the local baseball park. Two-ply ready roofing was used, and it was covered with hot pitch. The roof was intended to last only three years. Several small jobs have also been completed by the Troxell outfit.

The National Roofing & Supply Company reported that they had not been so busy for over a year, in the roofing line. The firm members said that they would be willing to give the weather man a commission for the work they have just got, as a lot of it was due to the unusually heavy rains which have fallen on Louisville lately. Concreting has already started, too. The company is erecting the concrete footings and foundation walls and piers, which are to be of that material, of the new three-story warehouse being erected for the Louisville Pillow Company. Concrete sidewalks are being laid down for the Louisville Cotton Mills. Many handsome country residences around Anchorage, a fashionable suburb, are to be built of concrete, and the company is figuring on the contracts.

The Kentucky Wall Plaster Company reported that things are getting better, and that a good deal of new work has developed lately. A lot of building is in sight, according to Mr. Campbell, who added that he expected a good season.

Builds Extra Story.

SAN FRANCISCO, CAL., March 10.—The Delmonte cereal mill has closed a contract with O'Brien Brothers, architects, to add a story to their reinforced concrete building that covers an area of 137½x137½ feet on the corner of Montgomery and Lombard Streets.

The work will be watched with a great deal of interest, as it is the first time in the history of building in San Francisco that a reinforced concrete building has been added to.

All Concrete Town.

What is declared will be the first town of exclusive concrete construction in the world is to be established at Metaline, Wash., in the heart of a lead mining district of the same name, 105 miles north of Spokane, by the Lehigh Valley Cement Company, of Pennsylvania, which has immense cement deposits nearby.

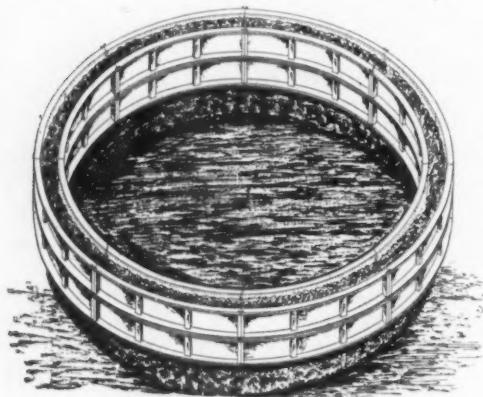
The company has just acquired water rights with 10,000-h. p. on Sullivan Creek from Louis P. Larson, of Spokane, for \$150,000. The Idaho & Washington Northern Railway Company is extending its line from Ione to Metaline, sixty miles, and the Panhandle Lumber Company plans to establish a big sawmill.

Side Talk

Jeffrey Pulverizer With Air Separation.

The pulverizing department of the Jeffrey Manufacturing Company, Columbus, Ohio, has another announcement in connection with its swing hammer pulverizer. This extremely versatile machine is now built in four distinct types to take care of as many classifications of pulverization. We show herewith an illustration of type B, which has recently been connected with an air separation system, developed at the Jeffrey establishment which is giving a very fine account of itself in a wide range of extreme tests upon various kinds of materials. An observation of the diagram elevation and ground plan of the new air separation system will clearly demonstrate its particular economies. The tailings from the induced draft are reintroduced for regrinding automatically so that the volume of fine material taken out is directly maintained by the single feed. A very large output of 200 mesh material and finer is obtained by the air separation attachment from many of the materials for which the type B mill is designed.

It is a serviceable, powerful and very efficient machine for pulverizing limestone, gypsum, shale, slate,



THE DIETRICH CLAMPS IN BUILDING SILO.

phosphate rock, fire clay, kaolin and similar substances. Its capacity on limestone is twelve tons per hour, 75 per cent passing the 80-mesh, and four to five tons per hour, with 95 per cent passing the 100-mesh sieve.

Among the important features of all types of this mill are the bearings, the best pattern and detailed construction known to modern mechanical science; the drop bottom cage and corrugated adjustable breaker plate, which have been proved to be the most effective arrangement for large output of the single mill; also, the top feed, the material being broken in suspension. Cut No. 1 shows the front of the machine with chain adjusting apparatus for adjusting the corrugated breaker plate. Cuts No. 2 and 3 show the air separation device.

One of the most popular and practical concrete mixing machines on the market today is the "Systematic," manufactured exclusively by the Cement Machinery Company, of Jackson, Mich., whose ad

appears in this issue. This company are the pioneer concrete machinery manufacturers, and have an excellent line of all styles of concrete block machines, mechanical tamping cement brick machines, and in fact, everything in concrete machinery, at the lowest possible prices, which machines have been adopted, including the mixers, by the United States and foreign governments, and have always received the highest awards wherever exhibited for superior excellence.

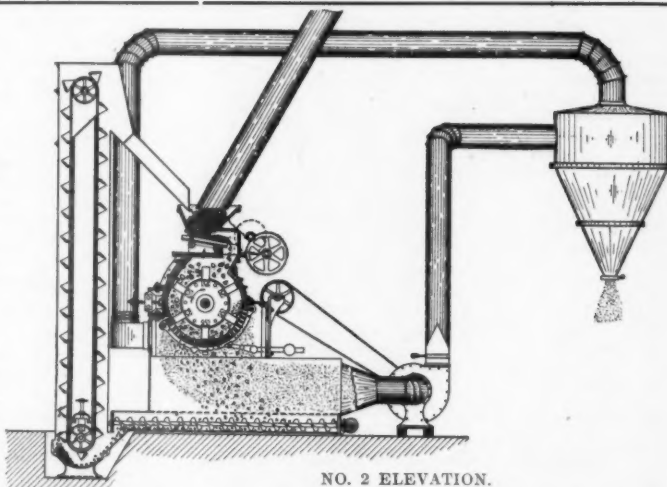
The Systematic mixer which we illustrate in the ad has caused this company to run their factory double time right through the winter on account of the many orders that they have received for same. Its principal features are high wheels and low hoppers, horizontal drive, no springs or chains, furnished with electric motor, gasoline or steam engines, hoppers only 42 inches from the ground, three of them, so that you can set one side for grout and the other side for top dressing; cement hopper holds a barrel of cement, built entirely of iron and steel, metal housed. It has thirty-two forward and reverse mixing flights, so that every time the material goes ahead two inches it is kicked back one-half inch, and the result is a thorough mix. The manufacturers state it will absolutely save labor, material and expense, as well as to cause the least annoyance, inconvenience or delay. It is claimed that this mixer will mix better by 25 per cent than any other mixer on the market, regardless of price or style. Scores of them are in operation, and the cut illustrates the 1909 model, and this company wishes those that are interested in any way in a first-class concrete mixer or cement block or brick machinery to kindly give them an opportunity to figure, as they are positive that they can convince the most conservative that their machines will deliver the goods, and absolutely give the best satisfaction for the least money. They have just issued a new catalogue for this year's machines, which is free to anyone requesting same.

That the Two Board Form System and the Dietrich Clamps are rapidly gaining favor among the builders of silos is practically indisputable. By way of explanation, it should be stated that two years ago Charles Dietrichs, of Little Ferry, N. Y., worked on some way to eliminate the high cost of a concrete. As the great expense was in the forms for the concrete it was evident this was the object to be attacked. With such vigor did Mr. Dietrichs attack this proposition that he has succeeded in eliminating 75 per cent of the cost of erection.

Anyone contemplating a silo would do well to first write the Dietrichs Clamp Company, Little Ferry, N. J., for the convincing evidence on this subject.

The "Lake City" cement drain tile machine, manufactured by the Electrical Cement Post Company, Lake City, Ia., embodies the latest development in this class of machinery. The machine is built to stand severe and continuous work. It has a capacity of 4,000 or more tile per day.

The company also manufactures the "Lake City Queen" concrete mixer, which is an accurate and reliable proportioning mixer, is light running and



NO. 2 ELEVATION.

easily adapted for mixing in large quantities. The capacity is 250 sacks of cement in ten hours with a 1:4 mix.

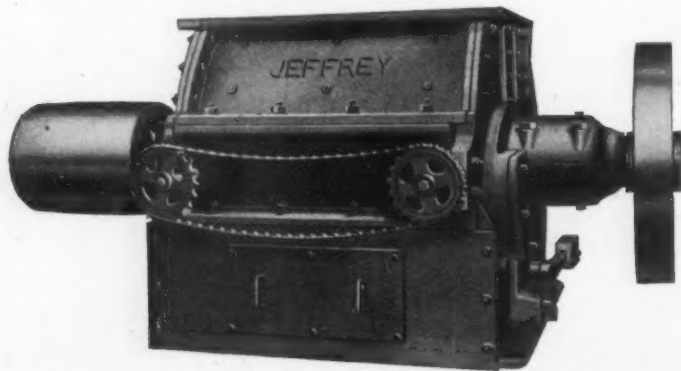
The Hudson cement brick machine, manufactured by the Hudson Manufacturing Company, of Hudson, Ind., is one of the few machines on the market that turns out an absolutely first-class product at a minimum cost of labor, which means large profits to the user. Hudson No. 1 makes ten bricks at a time and has a capacity of 4,000 bricks per day. It has lever drawn dividers and is unequalled for all kinds of work. Hudson No. 2 is the same as the No. 1 machine, except that it has hand drawn dividers and wood stand. It does very good work and has a capacity of 2,000 to 3,000 bricks per day. Hudson No. 3 makes five bricks at a time, has hand drawn dividers and a capacity of 1,000 to 1,500 bricks per day. It is an excellent machine for light work.

This company also manufactures the Hudson tile molds and the "Gruman" cement building block machine, cap and sill molds, chimney molds, mixers, etc. Catalogs and prices sent upon request.

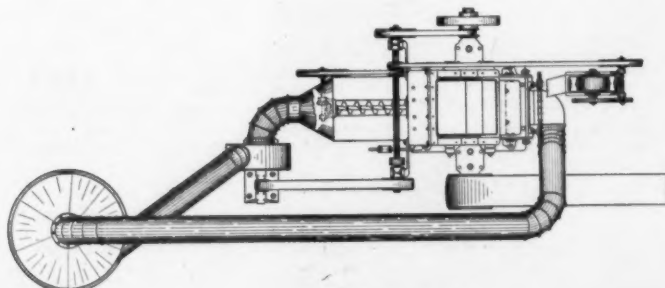
It is a well-known fact that not a great deal of water will remain on a duck's back. Figuring from this standpoint, the Billings-Chapin Company set out to find a waterproof for concrete that would shed water as easily as the aforesaid duck. So perfectly were their experiments perfected that they named their finished product the Duck Brand. It is a perfect filler and every color with the most perfect finish can be obtained. William S. Hotchkiss, Manhattan Building, Chicago, sales agent for the concern, will gladly furnish the details of this perfect waterproofing.

The Sandusky Portland Cement Company, Sandusky, Ohio, has just issued a little booklet covering a large number of the general uses of cement, with suggestions for its handling. The book is entitled "Many Everyday Uses," and comprises twenty-four well written and valuable pages. Book will be sent to any cement user on request.

The Burton Powder Company, Pittsburg, Pa., beg to announce to their friends that they have located their western office in the Fisher Building, Chicago. Anyone desiring the highest quality in powder would do well to pay them a visit.



NO. 1 JEFFREY TYPE "B" SWING HAMMER PULVERIZER



NO. 3 PLAN.

If anyone doubts that Sackett Plaster Board, made by the U. S. Gypsum Company, covers the country, satisfy yourself and write for one of their unique blotters.

The circuit court of the United States for the western district of Pennsylvania, in the case of the Gandy Belting Company, of Baltimore, vs. C. A. Turner, Inc., of Pennsylvania, recently ruled that C. A. Turner had infringed upon the exclusive rights of the Gandy company by selling belting under the name of Gandy belting.

A most artistic set of plans is the most apropos way of describing the booklet sent out by the Universal Portland Cement Company, containing a selected number of designs with descriptions and estimates of cost of concrete residences submitted in a competition of the Chicago Architectural Club.

Your attention is called to the high grade of red oxide of iron paint in the little bulletin published by the Chattanooga Paint Company, Chattanooga, Tenn. The company would be pleased to send you a copy on request.

"The Better Way" is the way Mateer Brothers Company, Joliet, Ill., style their concrete grave vaults in their circular. The vault is entirely of reinforced concrete and it is at least a little satisfying to the living to know that their beloved ones are free from the bugs and animals that infest the earth.

A sheet steel with dovetail corrugations, inversely tapered, thus forming a tight joint; that's Ferro-inclave, made by the Brown Hoisting Machinery Company, Cleveland. A light and at the same time a strong concrete-steel construction, it makes an ideal construction for roofs, culverts, silos, etc. As the company states, it is worth investigating.

Will Operate Stone Crusher.

INDIANA, Pa., March 18.—The Schryock Hill Land Company, a recent incorporation, will operate a stone crusher and sand plant here, plans having been perfected at a meeting of the organization.

The following officers were elected: President, A. M. Hook; treasurer, Griffith Ellis; secretary, Charles A. Gessler. Contracts were then let for the machinery needed at the new plant and the company opened an office at 18 Marshall Building.

The officers authorized the purchase of an up-to-date stone crusher and sand plant and a gas engine that will generate 50 h. p. Implements required in taking out building stone were also ordered. The machinery will arrive here within the next ten days and it will immediately be set up on the company's property. Men experienced in quarrying stone and operating the crusher and sand plant will be in charge and a salesman will be engaged to dispose of the product.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

For one insertion 25 cents a line
For two insertions 45 cents a line
For three insertions 60 cents a line
Eight words of ordinary length make one line.
Headings count as two lines.
No display except the headings can be admitted.
Remittances should accompany the order. No extra charges for copies of paper containing the advertisement.

EMPLOYEES WANTED

WANTED.

If you are in need of or wish to sell anything which comes under any of these classifications, write us. If you have something not coming under these classifications we will create one for you.

WANTED.

A first-class superintendent for large crushed stone quarry. Must be thoroughly experienced in operating of quarry and large crushing machinery. Good salary to right man. Answer at once, stating experience and where employed. Address "X. Y. Z.", care Rock Products.

HELP WANTED.

Traveling salesman—man of experience in the full line of Builders' Supplies and Specialties. Must be familiar with the business systems governing shipments and delivery by freight. Permanent position for the right party with established house having extensive business. Address BOX 624, care Rock Products.

EMPLOYMENT WANTED

WANTED—POSITION

as superintendent of stone crushing plant and quarry; seven years' experience; salary \$1,200 per year.
Address BOX 65, care Rock Products.

WANTED.

Position as manager or superintendent of sand and lime brick company; six years' experience; best references. Address C. R., care Rock Products.

BUSINESS OPPORTUNITIES

MANUFACTURERS' REPRESENTATIVE.

Member of A. S. M. E., expert in the designing and installation of Portland cement plants, rock crushing plants, coal and ash handling plants, elevating and conveying systems and mill machinery. Desires to establish engineering and sales office in New York City, representing active machinery manufacturing company. Will consider proposition upon the following basis: All office expenses paid, together with nominal salary and commission, but prefer to finance office and operate upon a strict commission basis, or will arrange to purchase machinery in own name and assume entire responsibility of accounts. Address BOX 600, care Rock Products.

FOR SALE.

Valuable gypsum property, near the diamond mines in Arkansas. Write for full particulars.
Address "12-M.", care Rock Products.

FOR SALE CHEAP.

The entire property or a half interest in a large tract of gypsum land and an up-to-date gypsum mill complete. Located in Oklahoma. Terms reasonable.
Address BOX 500, care Rock Products.

MACHINERY FOR SALE

FOR SALE.

First-class lime hydrator. For particulars and price address "HYDRATOR," care Rock Products.

ENGINES AND BOILERS FOR SALE.

Engines—Corliss, Automatic and Throttling, all sizes from 1 to 500 H. P.
Boilers—Horizontal, Portable and Vertical, all sizes from 1 to 200 H. P.
Pumps, Heaters, Tanks, Sawmill and General Machinery.
Write for our prices on your requirements.

THE HANDLE MACHINERY CO.,
1745 Powers St., Cincinnati, O.

FOR SALE.

Lidgerwood, 30 H. P., No. 72 hoist.....\$ 750
Flory, 12 H. P. hoist, D. C., D. D..... 500
Little Giant 1 yd. traction shovel..... 2,650
Hayward ¾ yd. orange peel bucket..... 375
Hayward 1½ yd. orange peel bucket..... 475
New 1 yd. clam shell bucket..... 375
Vulcan 8-ton, 24" gauge locomotive..... 1,250
60 Western 24" gauge, 1½ yd. cars at..... 30
45-ton Bucyrus, 3 sets engines..... 3,500
Road rollers, stone crushers, concrete mixers, etc.
We can save you money.

WILLIS SHAW CO., Chicago, Ill.

FOR SALE.

20-ton overhead traveler, 38-foot span; electric power or rope drive. 135 feet track; strictly first-class. Also 20-ton stiff leg stone yard and quarry derrick, Scoville make. 50-foot boom, double engines on mast, revolves full circle either direction. Fine condition.
WILLIS SHAW, 171 La Salle St., Chicago.

CORLISS ENGINES

1 16 x 30 Frick Girdler Frame.
1 18 x 42 Atlas
1 24 x 30 Clark Heavy Duty.
1 26 x 30 " " Heavy Duty.
1 30 x 48 Cooper Girdler Frame.

AUTOMATIC ENGINES

1 13 x 14 Brownell self contained on sub-base.
1 13 x 13 Ball.
1 20 x 30 Buckeye Heavy Duty.
All sizes from 20 to 300-H. P.

BELTING, SHAFTING & PULLEYS
BOILERS—TUBULAR OR WATER TUBE

Cleveland Belting & Machinery Co.

Cleveland, Ohio

CRUSHER FOR SALE.

Gates No. 4 Gyratory, in fine condition. Cheap.
R. P., BOX 2, Sta. A., Cincinnati, O.

MATERIAL FOR SALE

FOR SALE.

Five million cubic yards sharp sand, gravel and granite to sell. Cubic yard 1c. Crushing and delivering cheapest. Long dead. Address Box 300, care Rock Products.

PLANTS FOR SALE

Lime kiln and quarry, fully equipped, 150 barrel capacity. Have good trade established on "Eagle Brand," a fine white lime. Will sell one-half or entire plant. Address ALBA LIME WORKS, Farmington, Ark.

FOR SALE.

Horseshoe Quarry at St. Mary's, Ontario. Splendid limestone quarry, fully equipped with crushers, lime kilns, etc.; switching privileges with two railroad lines; splendid market in a half dozen cities within a radius of forty miles. Address THE LONDON & WESTERN TRUSTS CO., LTD., London, Canada.

MISCELLANEOUS

WANTED.

Dry pan, 7 to 9 feet. E. C. HAHNE,
1208, 134 Washington St.

MACHINERY WANTED

CRUSHER WANTED.

No. 5 Gates or Austin. Must be in good condition and price right. Address J. W. THEW, Marion, O.

WANTED.

A first-class second-hand No. 4 Gyratory crusher. Must be in good condition. Address, LOCK BOX 751, Columbus, O.

THE HENRY MARTIN BRICK MACHINE MFG. CO.
LANCASTER, PENNA.

ROCK CRUSHING MACHINERY
BRICK-MAKING MACHINERY
CLAY WORKING APPLIANCES
CEMENT BRICK MACHINERY
SAND GRINDING MACHINERY
SAND DRYERS, BRICK DRYERS, ETC.

SEND FOR PLANS AND ILLUSTRATED CATALOGUE



The Hoosier Cement Burial Vault Molds

All steel, no wood to shrink, swell and warp, always ready, without repairs, and good for a life-time. Best cement proposition known; 500 per cent. Profits. Telescopes and adjusts for making twenty sizes of Sinks, Tanks, Bath Tubs or Vaults. Makes vaults with Circle Corners, preventing cracks, corners strongest portion of walls. Ask for Circulars Nos. 3 and 4. For particulars address Ball & Brookshier, Thorntown, Ind. Patentees and Manufacturers. Agents Wanted.

CLINTON METALLIC PAINT CO. CLINTON, N. Y.

LARGEST AND OLDEST MANUFACTURERS OF
BRICK AND MORTAR
COLORING

Be sure you get the genuine with the "Little Yellow Side-Label" on each package.

Let us tell you about Side-Walk Black.

IMPORTANT

NOTICE

The Universal Crusher and Pulverizer, Model 1908-09, will be running on exhibition in Chicago, Ill., at the Coliseum, Booth No. 129, during the Cement Show, February 18 to 24, 1909. This is the Machine in which you and all are interested in. Come and meet us. You are cordially invited.

**THE UNIVERSAL STONE
CRUSHER CO.**

CEDAR RAPIDS. :: IOWA.

Fast Trains Day and Night on the

MONON ROUTE

EXCELLENT SERVICE

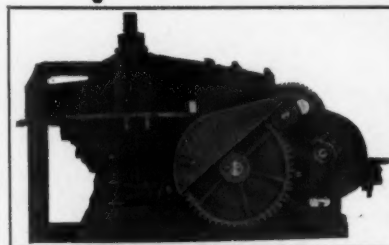
BETWEEN

**Chicago
La Fayette
Indianapolis
Cincinnati
Dayton
West Baden and
French Lick Springs
Louisville**

Standard and Compartment Sleepers on Night Trains, Parlor and Dining Cars on Day Trains

Frank J. Reed, G.P.A. E. P. Cockrell, A.G.P.A.
CHICAGO

Sand Lime Brick MACHINERY



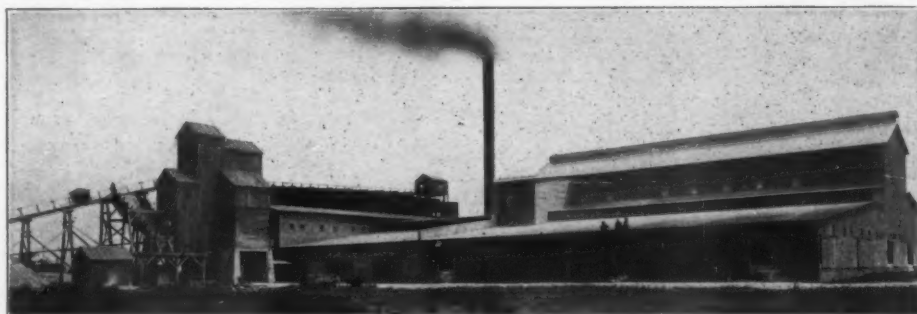
The Perfection Press

(Shown Above)

Will produce more perfect Sand Lime
Brick in a day than any other Press
on the Market.

It is made to do the work—and will do it right!

The Cleveland Brick Machinery Co.
WICKLIFFE, OHIO.



WORKS AT GIBSONBURG, OHIO
Largest Lime Manufacturing Plant in the World

Banner Hydrate Lime

SANDED WALL PLASTER

Ground Lime and Fertilizer

= Manufactured by

National Mortar and Supply Co.

209 Ninth Street PITTSBURGH, PA.

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Burton Powder Co.	14	French, Samuel H., & Co.	1	Martinet, Henry, Brick Mach. Mfg. Co.	65	Richardson Scale Co.	78	Winant Cooperage Co.	18
Butterworth & Lowe.	74	Fuller Eng. Co.	17	Maryland, P. C., Co.	45	Ricketson Mineral Paint Wks.	67	Wolverine Portland Cement Co.	2
Caldwell, H. W., & Sons Co.	17	Gandy Belting Co., The.	90	Maumee Chemical Co.	47	Ruggles-Coles Eng. Co., N. Y.	18		
Carolina Portland Cement Co.	1	Goetz, C. W., Lime & Cement Co.	12	Meacham & Wright.	68	Sackett Plaster Board Co.	85		
Castalla Portland Cement Co.	7			Mitchell Lime Co.	13				

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BAGS.

Urschel Bates Valve Bag Co.
West Jersey Bag Co., The.

BALL MILLS.

Aising, J. R., Eng. Co.
Power & Mining Mch. Co.

BELTING.

Cleveland Belt & Machy. Co.
Chicago Belting Co.
Gandy Belting Co.

BRICK.

Harbison-Walker Refractories Co.

BUCKETS, DUMPING AND GRAB.

Atlas Car & Mfg. Co.
Brown Hoisting Mac. Co.

BURIAL VAULTS MOLDS.

Ball & Brookshire.

BURR STONES.

Charles, J. M.

CEMENT BRICK MCHY.

Bartlett, C. O., & Snow Co.
Martin-Henry Brick Machine Mfg. Co.

CEMENT HYDRAULIC.

Carolina Portland Cement Co.
Chickamauga Cement Co.
Fowler & Fay.
Utica Hydraulic Cement Co.

CEMENT MCHY.

Aising, J. R., Eng. Co.
Anhydrous Pressed Stone Co.
Berg Mach. Mfg. Co., Ltd., The.
Cement Machinery Co.
Cummer, F. D., & Son Co.
Kent Mill Co.
Peerless Brick Machine Co.
Power & Mining Machy. Co.
Ruggles-Coles Eng. Co.

CEMENT, PORTLAND.

American Cement Co.
Alma Portland Cement Co.
Alpha Portland Cement Co.
Ash Grove Lime & Portland Cement Co.
Atlas Portland Cement Co.
Best Bros. Keen Cement Co.
Carolina Portland Cement Co.
Castalia Portland Cement Co.
Chicago Portland Cement Co.
De Smet, Geo. W.
Dexter Portland Cement Co.
Dixie Portland Cement Co.
Edison Portland Cement Co.
French, Samuel H., & Co.
Goets, Charles W., Lime & Cement Co.
Hartman, Wm. G., Cement Co.
Ironport Portland Cement Co.
Lehigh Portland Cement Co.
Marquette Cement Mfg. Co.
Mecham & Wright Co.
Maryland Portland Cement Co.
Northwestern States Portland Cement Co.
Oklahoma Port. Cement Co.
Omega Portland Cement Co.
Penn Allen Portland Cement Co.
Pennsylvania Cement Co.
Peninsular Portland Cement Co.
Sandusky Portland Cement Co.
St. Louis Portland Cement Co.
Superior Portland Cement Co.
Universal Portland Cement Co.
United Kansas Portland Cement Co.
Warner, Chas., Co.
Western Lime & Cement Co.
Whitehall Port. Cement Co.
Wolverine Portland Cement Co.

CEMENT ROOFING MACHINERY.

American Cement Roofing Co.

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Buckeye Fire-Clay Co.
Western Lime & Cement Co.

CLAYWORKING MCHY.

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Berg Mach. Mfg. Co., Ltd., The.
Cummer, F. D., & Son Co.

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Anchor Concrete Stone Co.
Century Cement Mch. Co.
Concrete Stone & Sand Co.
Perfection Block Mch. Co.
Pettyjohn, The, Co.
Simpson Cement Mold Co.

CONCRETE MIXERS.

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Electrical Cement Post Co.
Kent Mach. Co.
Marsh Co., G. C.
Morehouse, N. J.
Svenson-Shuman Mach. Co.
Williams Contractors' Supply Co.

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Carolina Portland Cement Co.

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Chattanooga Paint Co.
Clinton Metallic Paint Co.
Ricketson Mineral Paint Works.
Williams, C. K., & Co.

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The Pierce-Walton Co.

CONVEYORS.

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Bartlett, C. O., & Snow Co.
Caldwell, H. W., & Sons Co.
Ersham, J. B., & Sons Mfg. Co.
Power & Mining Machy. Co.

CRUSHERS.

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Bacon, Earl C.
Bartlett, C. O., & Snow Co.
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Chrome Steel Wks.
Ersham, J. B., & Sons Mfg. Co.
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Kent Mill Co.
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Martin, Henry.
McDonnell Boller & Iron Works.
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Bartlett, C. O., & Snow Co.
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Continental Car & Equip. Co.
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Burton Powder Co.
DuPont Powder Co.
Illinois Powder Co.
Independent Powder Co.

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Fuller Eng. Co.
Spackman, Henry, Eng. Co.

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Farrington, H.

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Shuart-Fuller Mfg. Co.

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Laclede-Christy Clay Products Co.
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Duffs Patents Co.
Power & Mining Mch. Co.

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Carolina Portland Cement Co.
Empire Gypsum Co.
Iowa Hard Plaster Co.
Plymouth Gypsum Co.
Niagara Gypsum Co.
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HOSE.

Mulconsey Company, Inc.

HYDRATING CYLINDERS.

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Clyde Iron Works.
Kritzer, The, Co.
National Mortar & Supply Co.

HYDRATING MCHY.

Clyde Iron Works.

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A. & C. Stone & Lime Co.
Ash Grove Lime & P. C. Co.
Carolina P. C. Co.
Farman Cheshire Lime Co.
Fowler & Fay.
Goets, Charles W., Lime & Cement Co.
Ohio & Western Lime Co., The.
Kelly Island Lime & Trans. Co.
Marblehead Lime Co.
Mitchell Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
New Jersey Lime Co.
Pierce City Lime Co.
The Scioto Lime & Stone Co.
Western Lime & Cement Co.

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Ohio & Western Lime Co., The.
Marblehead Lime Co.
National Lime and Stone Co.
National Mortar & Supply Co.
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Ernst Wiener Co.

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Sharon Steel Hoop Co.
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Monon Route.

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Ballou's White Sand Co.
Ottawa Silica Sand Co.

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American Sand Stone Brick Co.
Berg Mach. Mfg. Co., Ltd., The.
Cleveland Brick Machy. Co.
International Sand-Lime Brick & Mach. Co.

SAND LIME ENGINEER.

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Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

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Chattanooga, Tennessee.

TWENTY LONG YEARS

of time and weather tried out Ricketson's
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COLOR

for Mortar, Brick, Cement, Stone, etc., and proved it to be
absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson Mineral Paint Works
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MEACHAM & WRIGHT COMPANY

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BARRELS
ANNUALLY

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ALLENTOWN, PA.



STANDARD
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THE MAGIC TAMPER

A great labor-saving device which tamps the last block as solid as the first. Occupies no floor space; hangs on ceiling and can be swung to any one of the molds set within its radius. Perfectly balanced; a boy can operate it as well as a man. One horse-power will run it. All wearing parts and castings are made of open-hearth or crucible cast steel. The frame is 12 feet long, plunger 5 feet, with 14 inch stroke. Weighs about 165 pounds without balance weight. Three different size shoes to suit your molds given with each machine. Longer frame and plunger can be furnished. Write for circular and prices. Reliable agents wanted.

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MOORHEAD, MINNESOTA

OUR NEW Baluster Mold



[From Simpson Mold No. 66
Height 18½ in.
6 in. Square at Base

Was first shown at the Chicago Show in February. It created such a favorable impression that a large number of the molds were ordered on sight.

**The Price is
Eight Dollars**

If you have no copy of our Concrete Porch Book, showing our great line of molds for ornamental work, send for it. If you are a block or brick maker, contractor or cement worker send your business card or letter-head and we will send the book free, otherwise send 10 cents.

The Simpson Cement Mold Co.
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Make Concrete Tile and Sewer Pipe

The superiority of Concrete tile over Clay tile has been fully demonstrated

In every state, there is a large field for concrete tile. It can be sold to the farmers for draining their lands. Engineers are specifying concrete tile on sewer and drainage work. It is DURABLE. In Iowa, concrete tile, laid thirty years ago, is in use to-day, and is as sound as the day it was laid.

For Making Concrete Tile and Sewer Pipe The "Hudson" Molds are the Most Economical, Efficient and Durable.

They are made of the best material, by experienced workmen, of the best sheet steel, and reinforced wherever necessary. The outer casing opens directly away from the finished tile, hence no danger of injuring the tile in removing the casing. No heavy lifting, thus considerable time is saved. The clamps to lock the outside casing are simple and do the work rapidly and perfectly.

The inside casing contracts by a simple device, easily and evenly, and can be removed from the tile with ease.

Each mold is furnished with a hopper and a cone. A tamper is sent with each order.

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Wooden pallets are sent with the "Hudson" Tile Molds. With a good, solid, level floor, no pallets are necessary, as the tile can be made on the floor and remain there until ready to be moved.

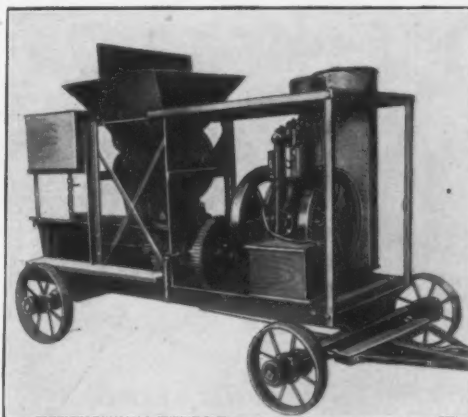
The "Hudson" Sewer Pipe and Tile Molds are Unexcelled for Simplicity, Efficiency and Rapidity.

They make Perfect tile at a minimum cost. They are durable. They will make you money. Give them a trial and be convinced.

Hudson Manufacturing Company, Hudson, Ind.

THE LAKE CITY QUEEN CONCRETE MIXER

Combines the best features of all the others and has none of their faults. The ideal concrete mixer at last. Accurate in proportion. Light running and especially adapted for mixing concrete where it is necessary to use it in large quantities. Has a capacity of two hundred and fifty sacks of cement in ten hours making a one to four mix. ∴ ∴ ∴



The Best
Continuous Mixer
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This mixer is made mounted for portable work and on skids for stationary work. ∴ ∴ ∴

There is a large profit to be made in manufacturing Cement Drain Tile. If you are interested drop us a line. We have a cement drain tile machine that is automatic and rapid and has a capacity of four thousand or more tile per day. Write for particulars.

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Manufacturers of CONCRETE MIXERS, CEMENT BLOCK MACHINES, CEMENT DRAIN TILE MACHINES, HAND TILE MOLDS, POST MOLDS, ETC. Send for prices.

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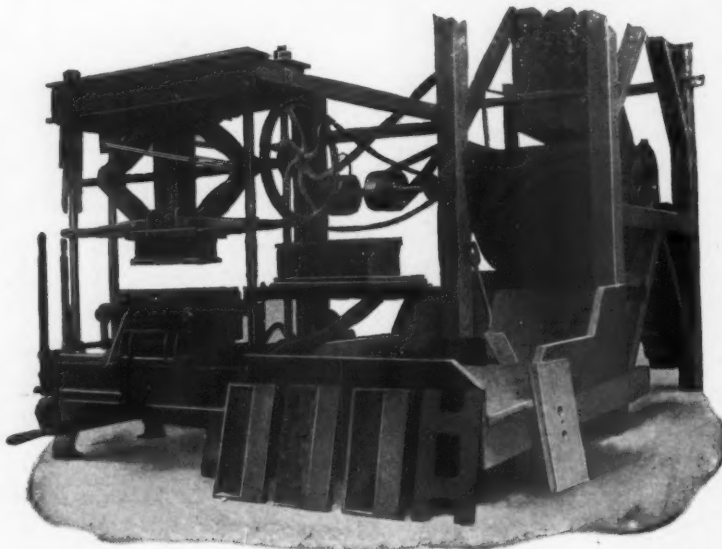
PERFECTION AT LAST ATTAINED IN THE CONCRETE BLOCK INDUSTRY

THE PERFECTION POWER BLOCK MACHINE is the only Power Block Machine on the market, making a Hollow Concrete Building Block under Heavy Pressure and at Great Speed.

Machines have been in constant use since July 1st, 1905, with practically no expense for repairs.

The machine handles sand, gravel, crushed rock, slag and coloring materials perfectly.

All materials accurately measured, thoroughly mixed and uniformly pressed under 200,000 pounds pressure.



Makes 8, 9 and 12x8x24 inch blocks in five faces, and fractional and angle blocks.

Machine can be arranged to make Two Piece and Faced Blocks if desired.

All machines delivered, set up and put in operation to show a guaranteed capacity of 60 blocks (12x8x24 inch) per hour with 5 men.

Blocks perfectly cured in 24 hours in Vapor Curing Kilns of our own design.

Full details, catalog, testimonials, etc., sent upon request.

THE PERFECTION BLOCK MACHINE CO.

KASOTA BUILDING :: MINNEAPOLIS, MINN.

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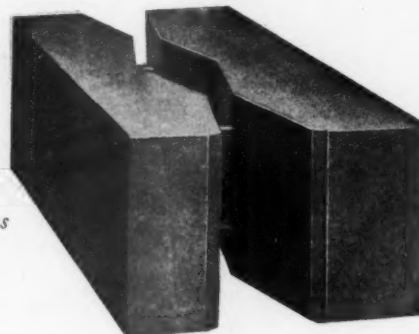


ANCHOR MACHINE IN POSITION TO RECEIVE MIXTURE

Anchor continuous air space blocks guaranteed frost and moisture proof.

Anchor blocks are bound together with firm $\frac{1}{4}$ in. galvanized iron rods 8 in. long and turned one inch at each end.

All machines sold direct to the trade, saving agents' commissions



Write for catalogue and special prices.

Standard Anchor Machines make blocks that lay in the wall 8 in. by 24 in., any width from 8 in. to 12 in.

Anchor Jr. Machines make blocks that lay in the wall 8 in. by 16 in. and any width from 8 in. to 12 in.

Anchor Concrete Stone Company

ROCK RAPIDS, IA.

Tell 'em you saw it in ROCK PRODUCTS.

A decorative background pattern consisting of a grid of horizontal and vertical lines, with diagonal lines crossing them to form a continuous mesh of triangles. The lines are dark and have a slightly textured appearance.

Triangle Mesh

Concrete

Reinforcement

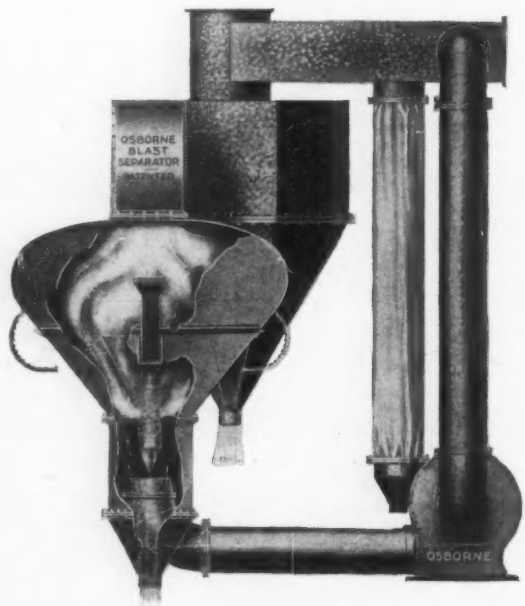
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American Steel & Wire Co.

CHICAGO, NEW YORK, DENVER, SAN FRANCISCO.

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In Your Grinding Room



You know it costs money to separate your material after it is ground, so why not use the best means of separation?

We can prove that the

Osborne Pneumatic Blast Separator

IS THE BEST AND CHEAPEST MACHINE FOR YOU TO USE.

It will give you larger capacities for less horse power than any other machine on the market. Will separate your material to 200 mesh fine.

Capacities, from 3½ to 10 tons per hour of finished product 95% 100 mesh fine.

STOPS ALL FLOATING DUST IN YOUR GRINDING ROOM.

Circular "A" Tells You More About It.

Osborne Engineering - Manufacturing Company

141 BROADWAY, :: NEW YORK.

"Brownhoist" Grab Bucket



DON'T SHOVEL CRUSHED STONE BY HAND

If you have an ordinary derrick driven by a single drum engine you are equipped to operate our single line grab bucket. This bucket is simply hooked onto the crane hook as shown herewith.

Our bucket on the derrick shown in the picture handled as high as 600 tons of crushed stone in ten hours.

WE CAN INTEREST YOU. WRITE US.

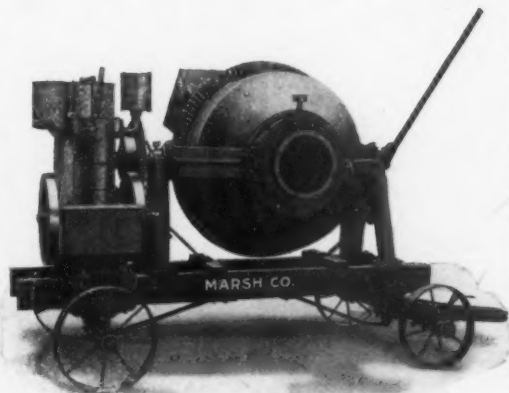
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OUR NEW BUCKET CATALOGUE SENT FREE TO INTERESTED PARTIES.

Tell 'em you saw it in ROCK PRODUCTS.



Furnished with any combination of power and mounting, chain or gear connection at option.

Marsh-Dexter Mixer

We claim a lot for this machine.
If our claims are true you want to know it.

If you will write us we will tell you how to find out.

Marsh Company

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CHICAGO

THE C. O. BARTLETT & SNOW CO. CLEVELAND, OHIO, U.S.A.
MANUFACTURERS OF

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DRYERS—the largest assortment in the world.

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Our motto is

"The Best and Always the Best."

"The Talk of the Cement Shows."
Our Block, Brick and Mixing Mch.

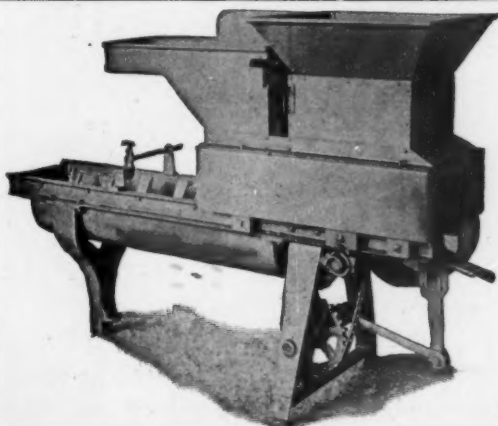
Systematic Concrete Mixer

Get Catalog "R"

28

Advantages
No Springs
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High
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Hoppers.
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Cement Mch. Co.
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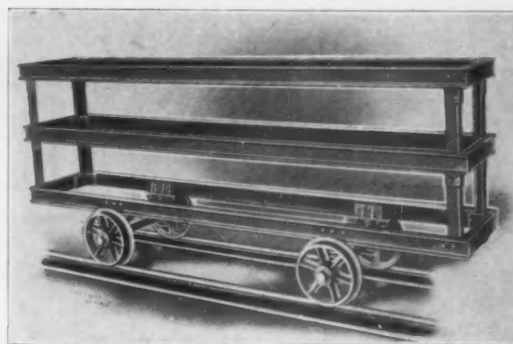
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"The Mixer that measures
and Mixes"

"You fill the Hopper, the
Mixer does the rest"

Simple, reliable, economical, durable
and moderate in price

Write for Catalogue and Prices to
The Kent Machine Co.
306 N. Water St., Kent, O.



The "KENT" Block Cars, Transfer Cars, etc.

Tell 'em you saw it in ROCK PRODUCTS



AUSTIN GYRATORY CRUSHER

The World's Leading Rock and Ore Breaker

The Only Automatically Lubricated Gyratory Crusher

8 Sizes—Capacities 40 to 2000 Tons.

Simple Construction (Saving Repairs)
Economically Operated (Saving Expense)

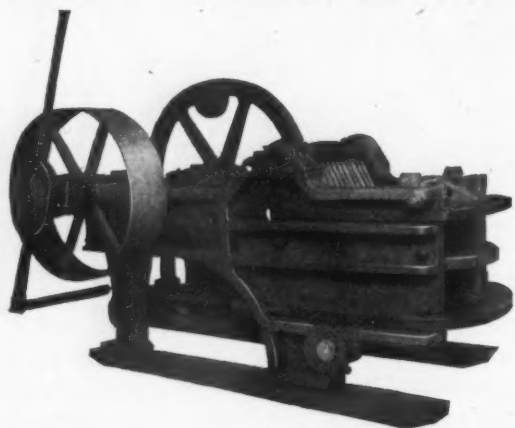
Correct Design (Saving Power)
Result: EFFECTIVE, DURABLE AND MAXIMUM CAPACITY.

Plans and Specifications Submitted for Any Size Plant.

Write for Catalogue.

AUSTIN MANUFACTURING CO., Chicago

New York Office, Park Row Building



CRUSHERS

for soft rocks, burnt lime, etc.

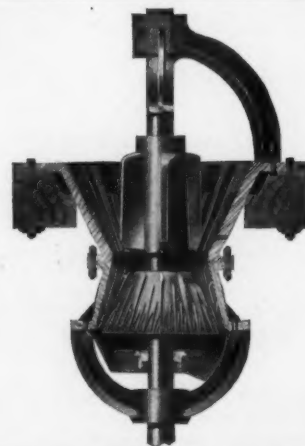
GYPSUM MACHINERY

We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

SPECIAL CRUSHER-GRINDERS FOR LIME HYDRATORS

BUTTERWORTH & LOWE

17 Huron Street, GRAND RAPIDS, MICH.



"The Svenson is Easily the Simplest and Fastest Mixer Ever Built"

Quit wasting money and making bad concrete with that "batch" machine. Don't fuss and lose time with complicated mixers. Let us tell you about this simple, strong machine.

The Svenson Concrete Mixer

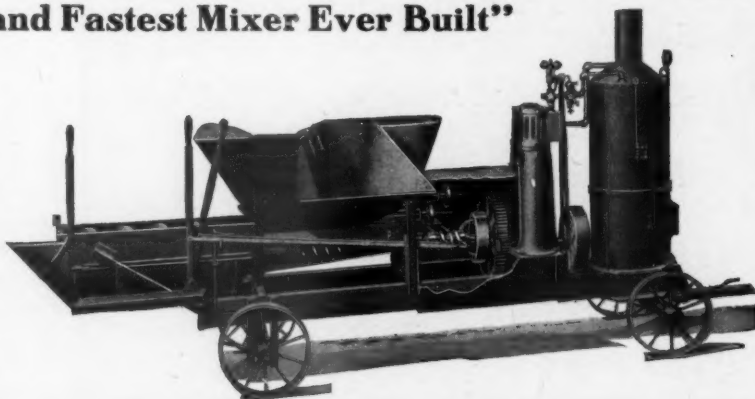
Has only five moving parts, all on one shaft. It keeps going and it keeps the men going.

We want to tell you our ideas on proper mixing, for the "Svenson" mixes dry, then wet—the only scientific way. And it proportions the mix positively, just the way you set it.

Send for Catalogue.

Svenson-Shuman Machine Co.,

602 Bessemer Bldg., PITTSBURGH, PA.



FARREL ORE AND ROCK

CRUSHER

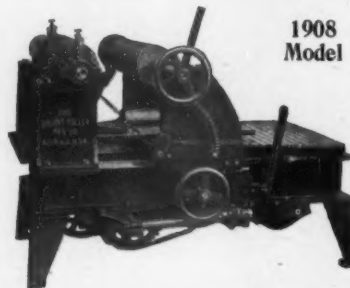
USED IN ALL PARTS OF THE WORLD—LARGE RECEIVING CAPACITY—SPECIALLY DESIGNED AND CONSTRUCTED FOR HARDEST KIND OF WORK
COMPLETE CRUSHING PLANTS OUR SPECIALTY

• SEND FOR CATALOGUE •

EARLE C. BACON, ENGINEER.

FARREL FOUNDRY & MACHINE CO. HAVEMEYER BUILDING, NEW YORK

The Shuart-Fuller Improved Fiber Machine



1908 Model

Has an automatic, proportional, increasing feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors, but write for descriptive circular and terms to

The Shuart-Fuller Mfg. Co.
ELYRIA, OHIO

St. Louis, June 17, 1907.

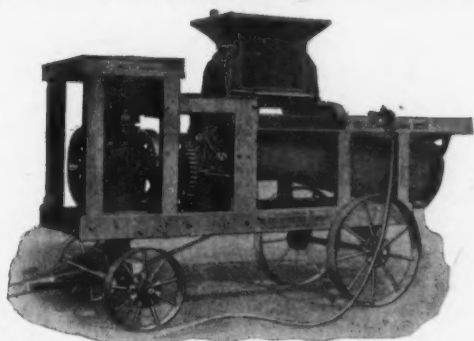
THE SHUART-FULLER CO., Elyria, Ohio.

Gentlemen:—We are just in receipt of advice from our New Mexico plant wherein they state that the Wood Fiber Machine recently shipped by you is doing all that we have asked of it and running very fine

ACME CEMENT PLASTER CO

By Jas. R. Dougan, Sect.

Coltrin Concrete Mixers



CHICAGO GREAT WESTERN RAILWAY
OFFICE OF DIVISION ENGINEER

206 E. Harrison St.

G. H. HERROLD,
Division Engineer.

The Knickerbocker Co., Jackson, Mich.

Gentlemen:—During the season of 1908 I used one of your Coltrin Concrete Mixers on bridge work. I constructed several double and triple 10 by 7 reinforced concrete culverts. I had two crews at work, one using your Mixer and the other mixing by hand. I find in comparing costs that the labor cost on the culverts where we used your mixer was about 28% less than on those jobs where we mixed by hand.

Your machine is a good one, does not get out of order and turns out a uniform mixture.

Yours truly,

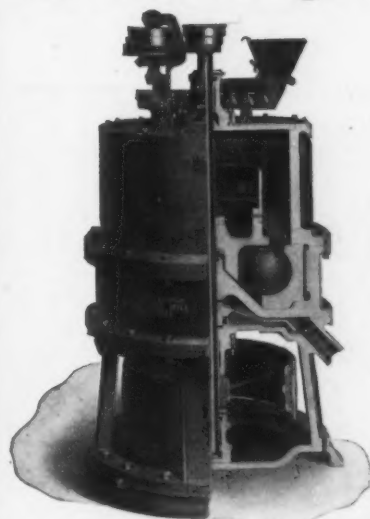
G. H. HERROLD

P. B. MILES' LATEST BLOCK MACHINE

and a full line of concrete machinery shipped on approval

N. J. MOREHOUSE
Waterloo, Iowa

The Fuller-Lehigh Pulverzier Mill



Cement Companies equipped with Fuller Mills advertise the fact that the consumer gets 38 pounds more of the **IMPALPABLE POWDER** or **REAL CEMENT** in every barrel of cement produced by **The Fuller Mill** than by any other

Produces Commercially

Cement having a higher percentage of Impalpable Powder than can be obtained by any other mill. Tests show that the tensile strength of a one-fourth mortar made with cement pulverized by the Fuller Mill is higher than the tensile strength of a one-third mortar made with cement pulverized to the fineness required by the Standard Specifications.

Lehigh Car, Wheel & Axle Works

CATASAUQUA, PA.

New York, N. Y.

Hamburg, Germany

Kansas City, Mo.

RAW MATERIAL GRINDERS

New Williams Universal

FOR TUBE MILL FEED

800 BARRELS 22 HOURS
95 PER CENT THROUGH 20 MESH
HORSE POWER 40 TO 50



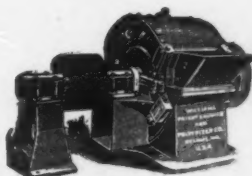
THE NEW WILLIAMS

WE ALSO GRIND
GYPSUM, LIME, COAL AND SHALE

Vulcanite Grinder

FOR ROLLER MILL FEED
TAKES MATERIAL FROM
GYRATORY, DIRECT

CAPACITY 20 TONS HOUR
FINENESS $\frac{1}{2}$ IN., $\frac{1}{4}$ IN. AND $\frac{1}{8}$ IN.
HORSE POWER 40 TO 45
1,300 MILLS NOW IN USE



WRITE FOR BULLETIN NO. 12

WORKS:
ST. LOUIS, MO.

The

SALES OFFICE:
OLD COLONY BLDG.
CHICAGO

Williams Pat. Crusher & Pulverizer Co.

San Francisco Offices: 428 Monadnock Building

All Steel Contains Manganese

There is no copyright on the term "Manganese Steel," therefore, any Steel may be called Manganese Steel

TISCO Manganese Steel is a patented product, and is the standard. The trade-mark "TISCO" is copyrighted. Therefore, any other steel that may be offered as Manganese Steel, will be an imitation depending on the reputation of TISCO Manganese Steel for its sale.

Taylor Iron & Steel Company

High Bridge, N. J.

THE KENT PULVERIZER

Takes one inch feed. Grinds to any fineness
from 10 to 200 mesh.

GRINDS PER HOUR WITH LESS THAN 25 H. P.

CEMENT CLINKER,	40 bbls. to	98%	20 Mesh.
CEMENT CLINKER,	12 " "	96%	100 "
		83%	200 "
LIMESTONE,	2½ tons to	98%	200 "
LIME,	4 " "	"	100 "
ROSENDALE CEMENT,	43 bbls. "	90%	50 "
QUARTZ TRAP-ROCK,	4 tons " "	"	40 "

You can easily figure from this what a Kent Mill would
save for you.

W. J. BELL, Esq., Supt.

NEWAYGO PORTLAND CEMENT CO.,
Newaygo, Mich.

Says:—Four KENT MILLS are driven by one 75 H. P. motor

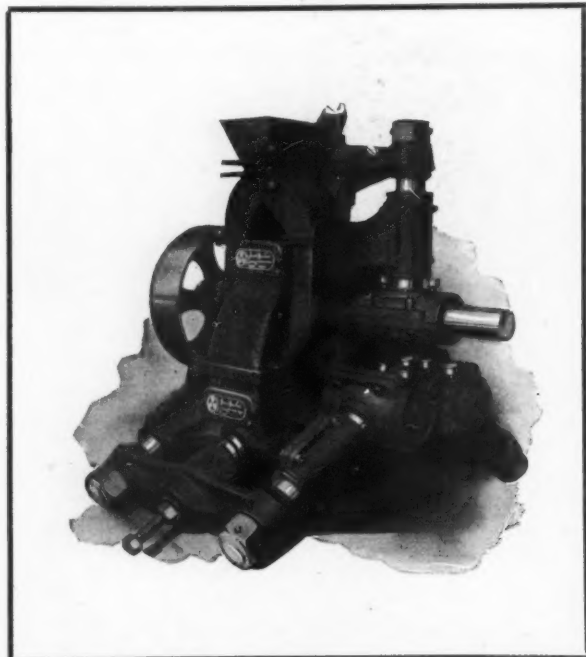
For Catalogs and Information, Address

KENT MILL CO.

LONDON W. C.
31 High Holborn

170 Broadway, NEW YORK

BERLIN N. W. 6
Schiffbauerdamm 29



In Producing Cement Clinker, what is YOUR Grinding Cost?

A statement is being advertised that "5 mills, grinding enough raw material to produce nearly 1,200 barrels of clinker per day, is a record."

NOW

We will guarantee (and our guarantee is worth something) that
3 Raymond Roller Mills will grind enough raw material to produce fully 1,200 barrels of clinker per day.

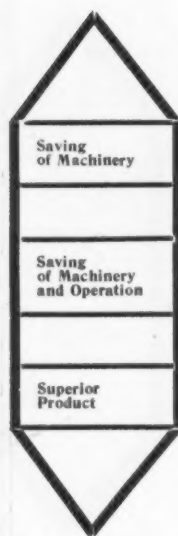
Moreover—

The Raymond Mills will take the material direct from crusher or rolls and thus save the expensive preliminary grinders necessary with other types of mills.

Furthermore—

We will also guarantee that the finished product from the Raymond Mills will be 98% 100 mesh fine and 92% 200 mesh fine.

If you are going to install grinding or separating machinery for handling cement or any other material you can not afford to act without having a talk with us.



RAYMOND BROS. IMPACT PULVERIZER CO.

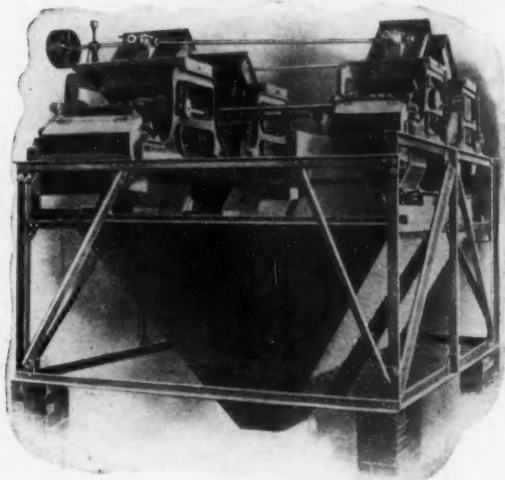
141 Laflin Street, Chicago

Tell 'em you saw it in ROCK PRODUCTS.

ACCURACY COUNTS

An assured exact mixture in accordance with the formula of the chemist of the works is automatically secured; no risk of a spoiled mixture on account of unreliable hand weighing when using the

Richardson Automatic Weigher



Two (or more) scales that work as one, discharging simultaneously by our new patent electric gear.
Any kind of material handled with equal facility.
Many successful installations.
Scales to weigh finished cement to the stock bins; also to weigh cement into bags, at the rate of five to six bags per minute.

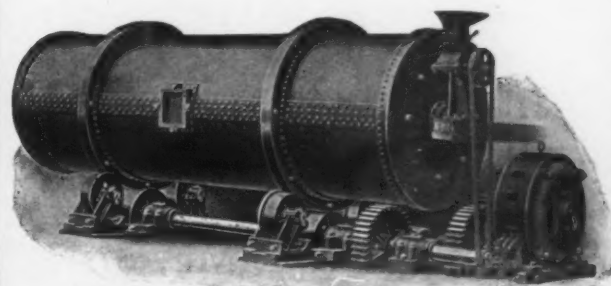
RICHARDSON SCALE CO.

3 Park Row, NEW YORK

122 Monroe Street, CHICAGO

ALSING TUBE MILLS

THE BEST for SAND LIME BRICK



Ores, Minerals, Chemicals, Cement, Etc.

A saving of 30% in power over any other tube mill guaranteed. The only machine that will produce Perfect Sand Lime Bricks.

In use in the most modern plant (The Cranford Paving Co., Washington, D. C.)

J. R. Alsing Engineering Co.

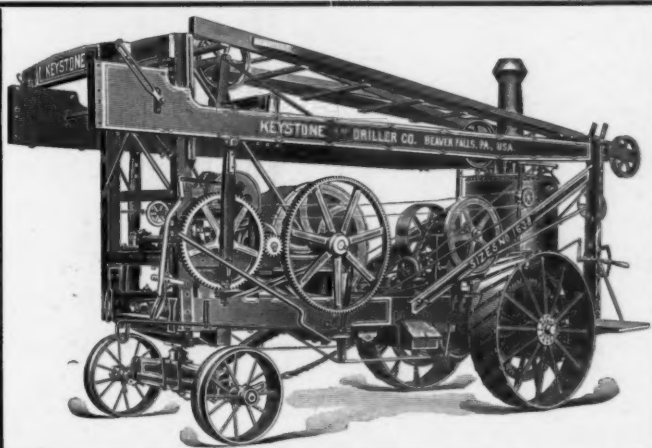
Incorporated 1885

R. F. ABBE, Pres't

Founded 1869

136 Liberty Street, New York

FOR HEAVY BLAST HOLES KEYSTONE CHURN DRILLS



IN CEMENT and STONE QUARRIES, where large and deep blast holes can be used to advantage, these machines form the cheapest and quickest means of sinking 6 inch holes.

Penetrate any formations, any depth, 30 or 300 feet. Self-moving or portable, if desired.

Ask for Catalog No. 4.

KEYSTONE TRACTION DRILL CO.

Western Office:
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BEAVER FALLS,
PA.

Southwestern Office:
Carthage, Mo.



95-C IN SANDUSKY PORTLAND CEMENT COMPANY'S QUARRY.

Bucyrus Shovels Are Loading Crushed Stone and Digging Blasted or Unblasted Cement Rock in the Leading Quarries in the United States.

THE BUCYRUS CO.

Branch Offices:
NEW YORK
SAN FRANCISCO

Main Office & Works:
South Milwaukee, Wis.

Tell 'em you saw it in ROCK PRODUCTS.

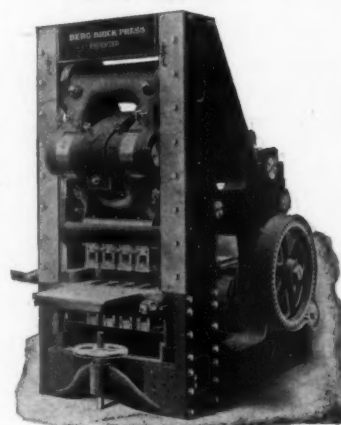
The "Berg Press" is the Highest Development in the Art of Brick Making Machinery, so Pronounced by the United States Government

Highest Grade
BRICK MACHINERY
 and Equipment

FOR
 SAND-LIME, SAND-CEMENT
 FIRE-BRICK, CLAY and SHALE

Each system we guarantee are unequaled and further advanced than any others

**Cement Machinery
 Mining Machinery
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BERG FOUR MOLD PRESS.
 Highest Efficiency Guaranteed.

The Berg Machinery Manufacturing Co., Ltd.
 Toronto, Ont., Canada

Imitation Is the Sincerest Flattery

Since it has been proved that our Patented Method for mixing sand and lime for the manufacture of brick or stone, commonly known and named by us the

"Division Method"

is a success, and the only way of producing a high grade brick or stone of real merit at a low cost, others are offering to install a

"Division Method" or a "Division System"

AS SOME CALL IT

Although we fully appreciate the high compliment paid us by such attempts to imitate our process

WE DESIRE TO WARN INVESTORS

that such imitation or "just as good" methods are failures, because "they do not deliver the goods". Moreover, any successful imitation would be an infringement on our process which is fully covered and protected by Letters Patent in the United States and all foreign countries. We will protect our patents and prosecute infringements.

We erect and equip up-to-date factories completely, furnishing machinery of special design for our use and operated under our Patented

"Division Method"

producing the highest grade brick or stone possible to make at less cost than can be produced by any other system or machinery.

Correspondence Solicited.

International Sand Lime Brick & Machinery Company

Engineers and Contractors for Silicate Brick Factories

90 West St.,

New York, N. Y.

Tell 'em you saw it in ROCK PRODUCTS.

PARKER Steel Corner BEAD

Is being used by all leading Plaster Contractors. It has become
so widely known for the following reasons

- BECAUSE it furnishes the strongest protection to the plaster corner; gives just the right rounding and is a guide for the plasterer in making a plumb, straight angle.
- BECAUSE with its peculiar shape the plaster is not thin and feather-edged where it joins the metal, and so does not crack and flake off.
- BECAUSE the steel is perfectly protected from rusting by a heavy coating of zinc, put on by the **Hot Galvanizing Process**. The electro-galvanized metal corner (which you may get unless "Parker" is specified) does not withstand the chemical action of hard plaster.
- BECAUSE it saves the cost of wood trim and constant repairing and repainting of it.

MANUFACTURED BY

Sharon Steel Hoop Company,

CHICAGO OFFICE: Commercial National Bank Bldg. N. Y. OFFICE: Fuller Bros. & Co., 139 Greenwich St.

GET THE BEST

Finest Line of Gypsum Machinery

MADE

KETTLE CRUSHER NIPPERS

ASK FOR CATALOG OF

MOGUL NIPPERS. OPEN DOOR POT CRUSHERS

Best Mills in the United States Have Them

McDONNELL BOILER & IRON WORKS, Des Moines, Iowa, U. S. A.

"Formerly Des Moines Mfg. & Supply Co."

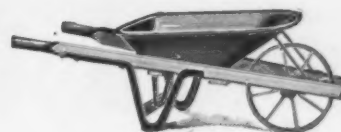
We make twenty other kinds of Wheelbarrows



No. 5
Ohio Steel Tubular Barrow



No. 150
Ohio Steel Coal and Ash Buggy

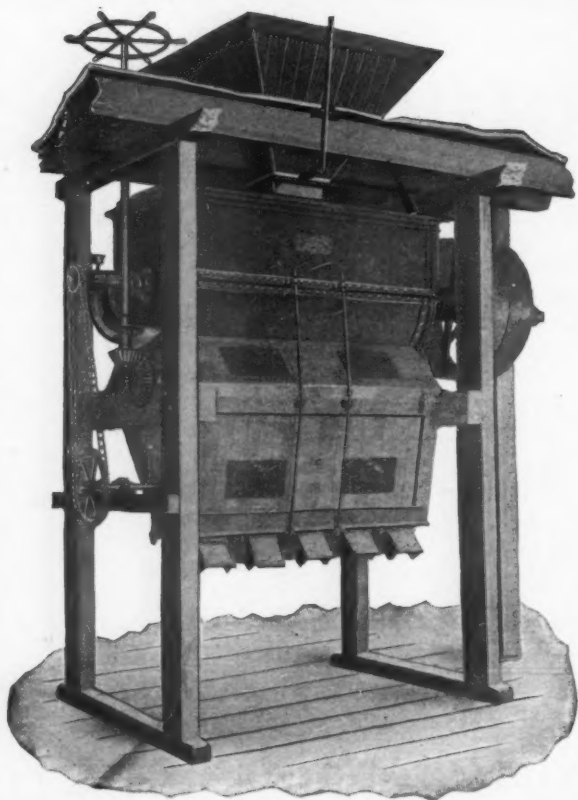


No. 106
Ideal Contractors Barrow

**Write for circular
and our prices.**

The Ohio Steel Wheelbarrow Co.
25-31 South St. Clair Street, - - TOLEDO, OHIO, U. S. A.

Tell 'em you saw it in ROCK PRODUCTS.



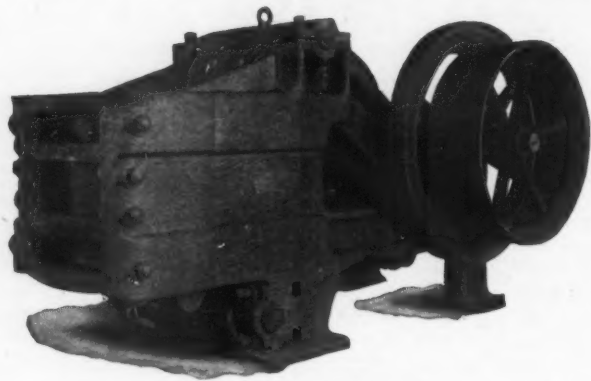
ENTERPRISE PLASTER MIXER

NOISELESS,
DURABLE and EFFICIENT.

For Mixing Hair Fibre, Wood Fibre and
Retarder with Dry Plastering
Materials.

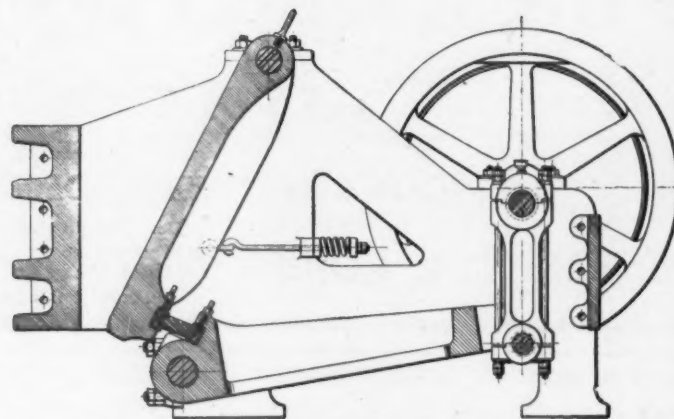
Calcining Kettles

Jaw and Rotary Crushers for Gypsum, Reels,
Vibratory Screens, Hair Pickers and Trans-
mission for applying power.



EHRSAM NO. 4 JAW CRUSHER.

This machine will handle large chunks and reduce from 30 to 40 tons
of Gypsum per hour to 2½-inch maximum or smaller if wanted.



NO. 4 JAW CRUSHER, SHOWING SECTIONAL VIEW OF NIPPER
The jaw opening at inlet is 18x28 inches.

The J. B. Ehrsam & Sons Mfg. Co.,

BUILDERS OF

COMPLETE EQUIPMENTS FOR PLASTER MILLS

Enterprise, Kansas

Tell 'em you saw it in ROCK PRODUCTS

Does Quality Appeal to You?
Does Prompt Service Appeal to You?
Does Reliability Appeal to You?

Then Buy

**Your Stucco and
 Wall Plasters of
 The
 AMERICAN GYPSUM CO.
 PORT CLINTON, OHIO**

Quality

Strength

Reliability

T HE URSCHEL-BATES VALVE BAG CO.
H as made paper bags for nearly 25
E very discriminating user.

U have no idea of the tricks
R esorted to by people endeavoring to
S how that the Valve Bag
O an't be used successfully.
H ave you ever known a new
E nterprise not to get some knocks?
L ife would indeed be too easy if one could

B e sure of capturing everything in sight
A t the outset of his career.
T he Valve Bag is practical and
E conomic. Everyone now using them
S ays so and wouldn't do without them.

V arious Lime and Cement plants
A re filling hundreds of thousands of them.
L ike falling off a log—so easy.
V astly different from the old style bag and
E ver so much more convenient in filling.

B ags are not tied and you save money, for
A larger output, at less labor, is obtained.
G ee! If you could only see 'em work.

C an you afford to pay more for packing than
O thers in your line are paying? Economize.

THE URSCHEL-BATES VALVE BAG CO.
 Toledo, Ohio

**Stucco
 Retarder**

**Strong
 Uniform
 Fine Ground**

RETARDER

We are the oldest Retarder firm
 in the United States, and above
 is our motto. New fire-proof
 plant and prompt service.

FREE SAMPLE ON REQUEST

Chemical Stucco Retarder Co.

WEBSTER CITY, IOWA.

INCORPORATED 1895

Tell 'em you saw it in ROCK PRODUCTS.

STUCCO—Lycoming Calcining Company

Garbutt, Monroe County, N. Y.

Enlarged, Re-equipped, Better and Larger than ever. Capacity, 250 tons per day. First Stucco mill built at Garbutt. Now located on two R. R. systems. Shipping facilities unsurpassed. Ten wall plaster Companies now using our Stucco exclusively, under contract. Write for price.

MAIN OFFICE, - - - WILLIAMSPORT, PENNA.

CUMMER CONTINUOUS PROCESS
FOR
CALCINING GYPSUM

NO KETTLES USED PLANTS IN OPERATION

Great Saving in Cost of Manufacture and Quality of Product Guaranteed.

The F. D. CUMMER & SON CO., Cleveland, O.

WASHED AND SCREENED

WHITE SAND


Silica

Just the right thing for molding artistic concrete work of all kinds. Pure silica as white as snow that will produce a white product for ornamental exterior and interior concrete finish. The perfectly practical facing material that has never been obtainable before. Quantity unlimited, price reasonable.

SHIPPING FACILITIES UNSURPASSED

Ballou's White Sand Co.
Box 8, Millington, Illinois

BEST THE BROS.



Keene's Cement

FOR

PLAIN AND ORNAMENTAL PLASTERING

EQUAL IN QUALITY TO FOREIGN MAKES

MILLS AND QUARRIES:
MEDICINE LODGE, KANSAS
SUN CITY, KANSAS

EASTERN OFFICE: . . CLEVELAND, OHIO

SPECIAL MACHINERY AND FORMULAS

FOR THE MANUFACTURE OF

WOOD FIBRE PLASTER, FIRE PROOFING AND KINDRED PRODUCTS

The Ohio Fibre Machinery Co.

J. W. VOGLESONG,
GENERAL MANAGER

Elyria, Ohio

We furnish the latest improved FIBRE MACHINE, (fully patented) also FORMULAS, on a reasonable proposition. The strongest companies and oldest manufacturers are operating under my contracts.

WRITE FOR TERRITORY

KING'S WINDSOR CEMENT
FOR PLASTERING WALLS AND CEILINGS

Elastic in its nature, can be applied with 25 per cent less labor and has 12½ per cent more covering capacity than any other similar material

Buffalo Branch, CHAS. C. CALKINS, Manager
322 W. Genesee Street

J. B. KING & CO., No. 1 Broadway, New York

Tell 'em you saw it in ROCK PRODUCTS

BUILDERS' SUPPLY DEALERS CAN MAKE TWO PROFITS!



Both Manufacture and Sell Rader Patented Plaster Board

If you are selling plaster boards you are making one profit. Why not manufacture them and make both manufacturers' and dealers' profits? With

RADER'S PATENTED MOULDING TABLES

you can manufacture the best plaster boards on the market and at less cost than the largest manufacturers, enabling you to compete with any brand, both in quality and price.

PLASTER BOARDS

are rapidly displacing all kinds of lath, being fire and vermin proof, lower in price, more rapid and economical in construction, stronger and more durable.

RADER'S PATENTED PLASTER BOARDS

made only with Rader's Patented Moulding Tables are the most satisfactory now on the market. Cannot be broken as can others, thereby eliminating

all risk of loss by breakage in transportation or general rough handling. They have to be sawed in two. Each side of the board is adapted to different purposes thus having a double advantage over any other make. Three plants are now in operation to meet a growing demand.

A COMPLETE PLANT CAN BE INSTALLED AT A SMALL COST

as the Rader apparatus is licensed at a very low price and only a very small space is required for its operation. The device makes boards from $\frac{1}{4}$ to 1 inch in thickness.

TERRITORY AND RIGHTS CAN BE LICENSED

with the exception of the New England and Middle Atlantic states which have already been secured by one of the largest plaster manufacturing companies in the East.

Write us for Samples and Further Information.

GUSTAVE RADER CO. 1105 Metropolitan Ave. **BROOKLYN, N. Y.**

RETARDER Wood Fiber

THE OHIO and BINNS RETARDER CO.
PORT CLINTON, OHIO

Reliable Stucco Retarder=Strong=Uniform in Strength=
Duplicate power plant (electric and steam power) installed so as to preclude any possibility of shut down and consequent shut down of mixers who depend upon us for their supply of Retarder. We have a capacity large enough to supply every retarder user in the U. S. and Canada, and some to spare for Europe. Our mills are fireproof in every particular. Write us for prices and information.

THE OHIO and BINNS RETARDER CO.
PORT CLINTON, OHIO

EXTRA!!

Extra Sales Extra Profits Extra Satisfaction

come from handling the **best grades**—the **dependable** goods—the **reputable brands** of **any** staple commodity.

¶ If you want **all** the sales—**all** the profit—**all** the satisfaction there **should** be in the plastering material business for you, it's high time for you to consider **seriously** the



U. S. G. Brands of HARD PLASTER

Made From Pure Rock Gypsum

- ¶ Superior Quality is one thing—Uniformity is another: when you get **both**, as you do in the U. S. G. Brands, you have **Dependability**. And that's worth a little extra to **any** dealer—although it **costs** you **nothing** extra.
- ¶ What would you give for the practical elimination of plaster complaints, and the assurance of Repeat Orders and a steadily increasing plaster business? Let us tell you what to give: give us an order, and **try it out!**
- ¶ Test our Superiority in Quality, Dependability and Service—our Advertising Assistance and our Hearty Co-operation, with an initial order—then judge for yourself whether **it pays you** as it is paying thousands of progressive material dealers from Coast to Coast.
- ¶ Test our Promptness with an Inquiry—for Information, Plaster Advice, Quotations or Literature.

Address our Nearest Office:

United States Gypsum Company

NEW YORK

BOSTON

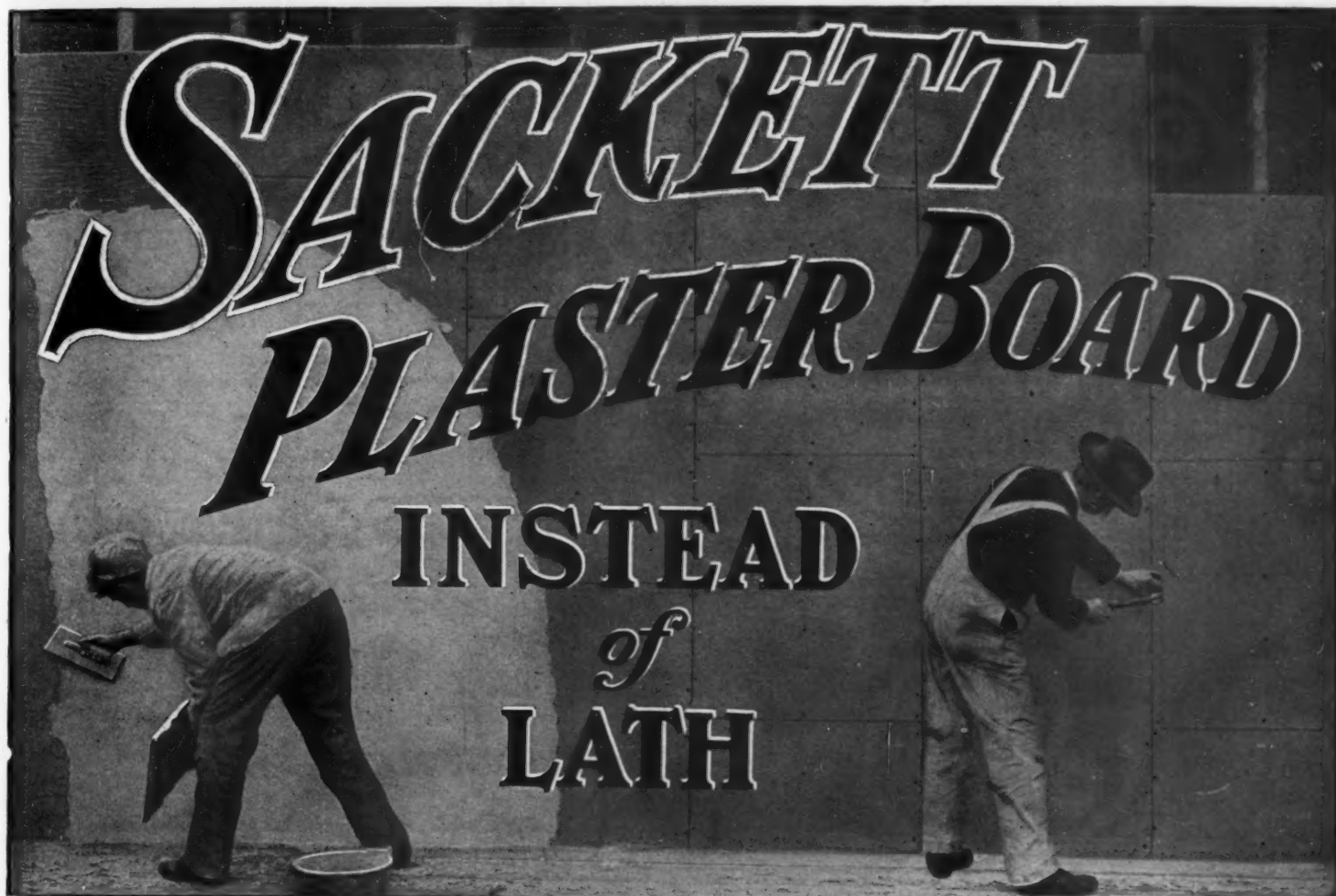
CLEVELAND

CHICAGO

MINNEAPOLIS

SAN FRANCISCO

Tell 'em you saw it in ROCK PRODUCTS.



SACKETT PLASTER BOARD

INSTEAD of LATH

FIREPROOF AND ECONOMICAL

SACKETT PLASTER BOARDS have been successfully used since 1891 in thousands of buildings of all classes, including small cottages, prominent hotels, costly residences, churches and theaters.

Walls and ceilings of Sackett Plaster Boards will be DRY AND READY IN HALF THE TIME required when lath is used, as less than half the quantity of water is needed.

Less moisture means less damage from warped and twisted trim and woodwork.

Their superior insulating qualities make warmer houses with less fuel. The first cost is no more than good work on wood lath, and less than on metal lath.

Sackett Plaster Board is an efficient and economical FIREPROOFING not only for walls but between floors, and for protecting exposed wooden surfaces in mills, warehouses and industrial structures. It is also used extensively instead of lumber as outside sheathing under weather boards.

Sackett Plaster Board comes in sheets or slabs 32x36 inches ready to be nailed direct to the studding, furring or beams.

For all kinds of Buildings its use is ideal. It speeds construction; it lessens building cost; it reduces fixed charges for insurance; it makes fire resisting walls and ceilings, and gives absolute satisfaction.

Carried in stock by up-to-date building material dealers everywhere.

Booklet showing buildings all over the country where these boards have been successfully used with SAMPLES and name of nearest dealer furnished on application to any of the following General Distributors.

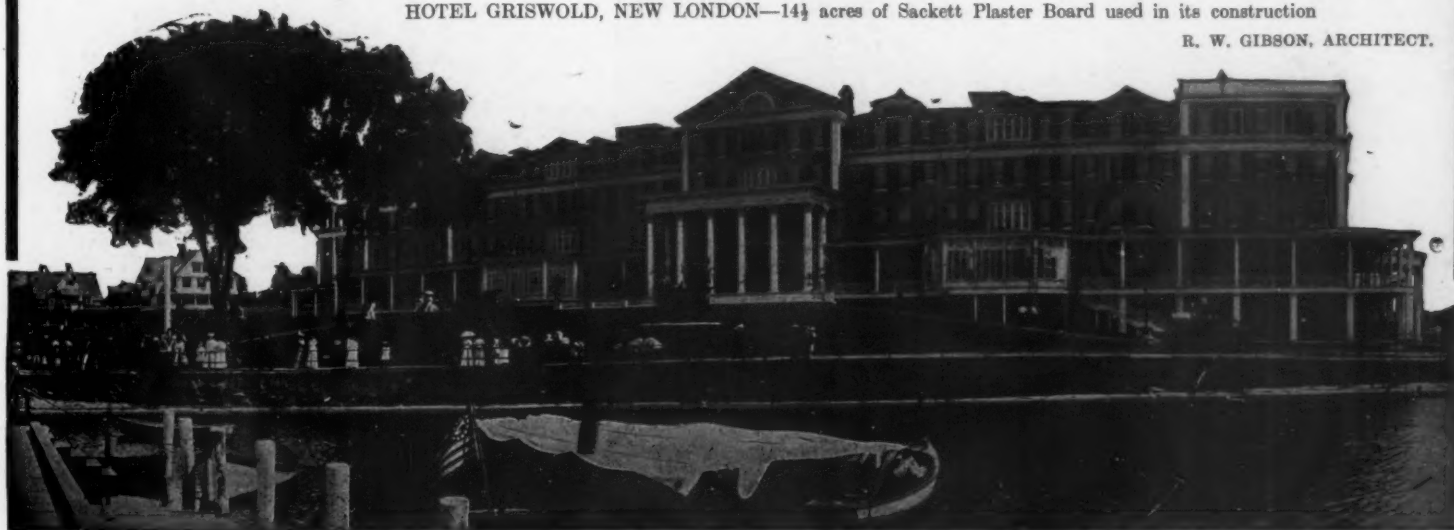
UNITED STATES GYPSUM CO.
CHICAGO CLEVELAND MINNEAPOLIS

GRAND RAPIDS PLASTER CO.
GRAND RAPIDS, MICH

SACKETT PLASTER BOARD CO.
17 BATTERY PLACE, NEW YORK CITY

HOTEL GRISWOLD, NEW LONDON—14½ acres of Sackett Plaster Board used in its construction

R. W. GIBSON, ARCHITECT.



Tell 'em you saw it in ROCK PRODUCTS.

NIAGARA GYPSUM CO.

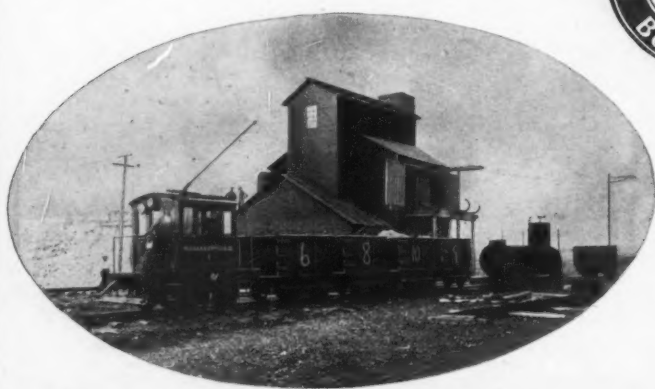
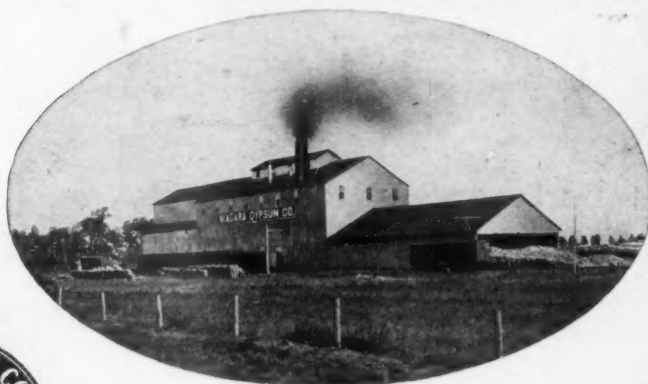
MANUFACTURERS OF

GYPSUM PRODUCTS

MINES and MILLS
Oakfield, N.Y.

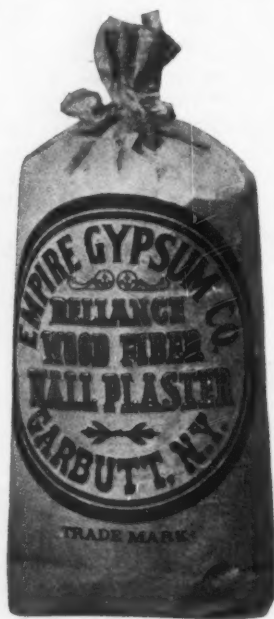
GENERAL OFFICES
Buffalo, N.Y.

Our electrically equipped mines and mills are now in operation with a capacity of 300 tons per day, and we assure you of prompt service.



We Manufacture Stucco,
Neat Cement Plaster, Ready
Finish, Wood Fibre Plaster, Fin-
ishing Plaster, Sanded Wall Plaster,
Crushed Rock, Land Plaster.

Quality Strength Capacity



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Wall of Fame

Tell 'em you saw it in ROCK PRODUCTS.

The Improved Peerless

One-Man Cement Brick Machine

Equipped with new tamping device, which tamps ten bricks in the machine at one operation, making 12,000 perfectly formed bricks in ten hours.



The superiority of the Peerless Brick Machine was demonstrated conclusively at all of the recent conventions.

It is the greatest invention in the industry. Simple, strong and durable. Combines all the advantages of every other machine at the smallest cost.

The most successful and most easily operated one-man brick machine ever made.

Write at once for particulars.

Peerless Brick Machine Co.

15 NORTH SIXTH STREET MINNEAPOLIS, MINN.

EASTWICK PLASTER CO.

MANUFACTURERS OF
HIGH GRADE CALCINED PLASTER

Also: HARD WALL PLASTER
WHITE COAT FINISH
PARTITION BLOCK
COMPOSITION BLACKBOARD
CEMENT STONE

Let us quote prices and show you where our materials can save money for you.

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EAST FALLS
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BUILDERS' EXCHANGE
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Plaster! Plaster!

Iowa Hard Plaster Co.

HARD BY NAME. HARD BY NATURE.
HARD TO BEAT. NOT HARD TO GET.

Iowa Hard Plaster Co. FT. DODGE IOWA

CROWING FOR



PLYMOUTH H CEMENT

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WOOD FIBER PLASTER

The Brand that's Made from Pure Gypsum Rock.

WRITE US FOR PRICES AND ADVERTISING MATTER.

Plymouth Gypsum Co.

Fort Dodge, Iowa

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Start in the Block Business Right

WHY

ARE THE LARGEST, MOST SUCCESSFUL AND RELIABLE
MANUFACTURERS OF CONCRETE BLOCKS USING

HERCULES MACHINES



A FEW REASONS

A superior quality of stone is produced

Blocks can be made quicker

Blocks can be made cheaper and better

Unlimited variety of sizes and designs

The Hercules is no experiment

It expands as your business grows

No annoying repairs or breakdowns

You can get new or duplicate plates

AND GET THEM PROMPTLY

BECAUSE

{ All plates are perfectly machined and finished. Rock designs are taken direct from cut stone. A really *wet* mixture can be used.

{ *Four* blocks 16 in. long (any width or height) can be made at one time, or *two* blocks 20 in., 24 in. or 32 in. long. *Impossible on any other machine.*

{ Blocks are made face down, allowing fine mixture for facing and coarse mixture for backing. This gives fine outside finish, combined with strength and durability. The coarse mixture also saves cement.

{ Over *two thousand one hundred* different designs and sizes to choose from. Blocks can be made 4 in., 6 in., 8 in., 9 in., 10 in., 12 in., 16 in. high in all widths, lengths and designs. *We defy competition in this respect.*

{ It is one of the oldest and best established machines on the market to-day. Hercules machines are found in all sections of the civilized world.

{ It is not necessary to buy a new machine for each length of block, as with other makes. Any size or length of block can be made on *one Hercules machine*. You can start with a small equipment and add to it as business warrants.

{ Hercules machines are built strong, of the best materials, by skilled workmen, in our own factory. They are simple, practical and have no complicated parts to be continually getting out of order. *We guarantee them.*

{ An immense stock of parts, which are interchangeable, are always on hand. We are at your service *year after year*. Buy your machine from a firm that will stay in business.

The ONLY MACHINE that will produce *any size* of water table, sill or lintel up to *six feet* long, in addition to *any and every size, style or design* of building block.

The machine you will succeed with—and the one you will eventually buy.

We also manufacture THE HERCULES CONCRETE MIXER, the only perfect proportioning continuous mixer. Catalogue on request.

CENTURY CEMENT MACHINE CO.

288-298 St. Paul Street, ROCHESTER, N. Y., U. S. A.

Please send catalogue describing Hercules
block machine, as advertised in February
number of Rock Products
Name
Street
City State *e*

Concrete Structural Tile

BEST, CHEAPEST AND MOST FIREPROOF
MATERIAL FOR WALLS, FLOORS AND PARTITIONS

Home Builders, Real Estate men, and Investors, as well as Engineers, Contractors, Architects and all other Building Experts promptly give their Endorsement.

ALL THE REASONS FOR THIS WOULD TAKE TOO LONG TO ENUMERATE,
———BUT HERE ARE A FEW:———

¶ Concrete Structural Tile is the true ideal material for the American home, because the saving in cost is considerable, and, as the safety of the home from fire is paramount. It is the only possible material with which the walls, floors and roofs can be constructed (the two latter divisions of the work using reinforced concrete ribs) entirely non-combustible.

¶ In this way any building can be made quite safe from fire without paying anything extra, by simply ordering concrete structural tile throughout. When tile is used for the walls and partitions only the floors and roof can still burn out.

¶ No more costly than wood, and cheaper than brick and wood in combination. Think this over in connection with the fire hazard of life and property for the home and for the summer cottage.

¶ The architect finds in concrete tile a widely adaptable material for the expression of the most artistic

modern ideals of design, whether it be in Mission, English Cottage, German, Italian Villa or our own American Colonial style.

¶ Artistic treatment of exteriors, and the grandest interior plaster decorations can be secured with concrete tile, because a wall or partition made of it offers the best plastering surface obtainable without wetting or other preparation. It saves both plaster material and workmanship to such an extent that the same money that would ordinarily pay for a plain job will provide some decorative accessories.

¶ There is a profit in the Concrete Structural Tile business for the manufacturer, for the retailer of supplies, for the contractor; a big opportunity for the architect and the concrete engineer, and the owner is always satisfied.

Millions of Concrete Structural Tile will be used in the building season of 1909, because their sale is only limited by the extent of the production, and large factories at Youngstown Ohio, New York, Boston, Chicago, Montreal, and other leading markets are preparing to do business upon a large scale.

¶ Full particulars with regard to the equipment of a suitable factory for any given location will be cheerfully given, and a conservative and profitable deal will be exhibited for prospective manufacturers of concrete structural tile upon request.—Investigate this.

SEND FOR CATALOGUE SHOWING A LARGE NUMBER OF HOUSES BUILT OF THIS MATERIAL

CONCRETE STONE & SAND COMPANY
Youngstown, Ohio

BUILT FOR BUSINESS

Champion Steel Rock Crushers



The Champion Portable Crushing Plant

Will make money for users because they will do more work at less cost for repairs than any other machines. Built in five sizes, from 75 to 300 tons daily capacity.

Complete Crushing Plants, including Elevators, Screens, Conveyors, Engines and Boilers, designed and installed.

Catalogue costs nothing. A large calendar free to those who mention this paper.

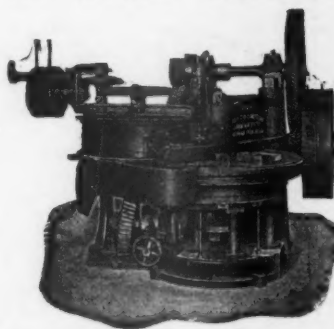
[Address]

The Good Roads Machinery Co.

KENNETT SQUARE, PA.

The American Sandstone Brick Machinery Company,

SAGINAW, MICH.



Improved Saginaw Rotary Presses are now being built right or left hand, with extra table for making face and fancy brick, on which double pressure is exerted. Our patented brush does the work of one man, and keeps the plunger plates clean.

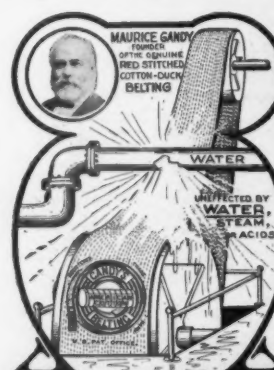
DON'T confuse our practical system with the so-called Scientific Systems. We confine ourselves to the manufacture of machinery for making brick from sand and lime; installing the complete plant starting and operating at our expense until at least 100,000 brick are made before asking for a settlement.

Our Plants are installed under the supervision of practical engineers who know how Sand-Lime Brick should be made, and can be made.

We have practical plants running successfully, to show to prospective investors.

We are Not Scientists.

We produce results, because we are the oldest practical Sand-Lime engineering company doing business in the United States, and we defy contradiction. Incorporated April 1902.



THE GENUINE GANDY

For the Quarrymen.

The Gandy Red Stitched Cotton Duck Belt offers the best and longest service to be had.

It's extremely tough and strong to start with, and being absolutely water proof, it stays tough, regardless of steam, water or acids. Lasts years under most destructive condition.

Write for Booklet.

(Good for any belt; Gandy Belt Dressing.)

THE GANDY BELTING CO. BALTIMORE, MD.



HOWELL'S Celebrated Ball Bearing Heavy Geared Post Drills

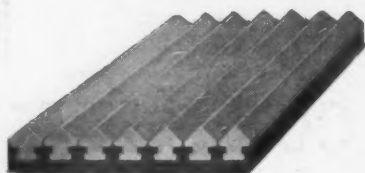
For boring anything that an Auger will penetrate.

Awarded Gold Medal, St. Louis.

We make 40 different styles machines run by Hand, Compressed Air and Electricity for boring Fire Clay, Coal, Rock, Rock Salt, Gypsum and Plaster Rock. Send to day for our handsomely Illustrated Catalogue.

HOWELL MINING DRILL CO., PLYMOUTH, PA., U. S. A.
(ESTABLISHED 1878.)

A Tempered Steel Jaw Plate for Blake Type Crushers



Canda Tempered Steel Crusher Jaw Plate

Patented March 31, 1908

CHROME STEEL WORKS

CHROME, N.J., U.S.A.
(FORMERLY OF BROOKLYN, N.Y.)

The Canda Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers.

The Canda method of cast-welding forged and tempered steel bars into a mild and tough Steel Backing, is adapted also to the construction of Cone Heads for Gyratory Crushers, Segments for Corrugated Rolls, etc., etc.

Our products in this line are sold with our special guarantee that they will wear longer, give better satisfaction and, at our price, prove more economical than any others now on the market.

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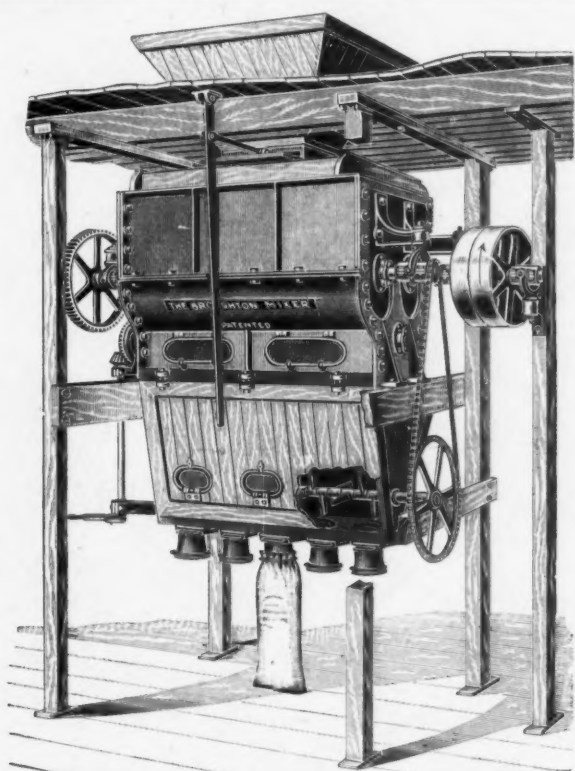
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The most thorough and efficient
Mixers of Plaster, Cement and
Dry Materials. Send for Circular.

W. D. DUNNING, Water St., Syracuse, N. Y.

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Double Side Dump Car built for 18-54 cu. ft. capacity and 24" to 36" gauge.

Our cars **Stand Hard Service** because the material that is embodied in them is of the best quality. The construction is of the latest and most approved type.

Our cast iron wheels have an extra high flange and broad tread which has a deep chill.

Let us quote prices on your requirements.

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Sand-Lime Brick Machinery

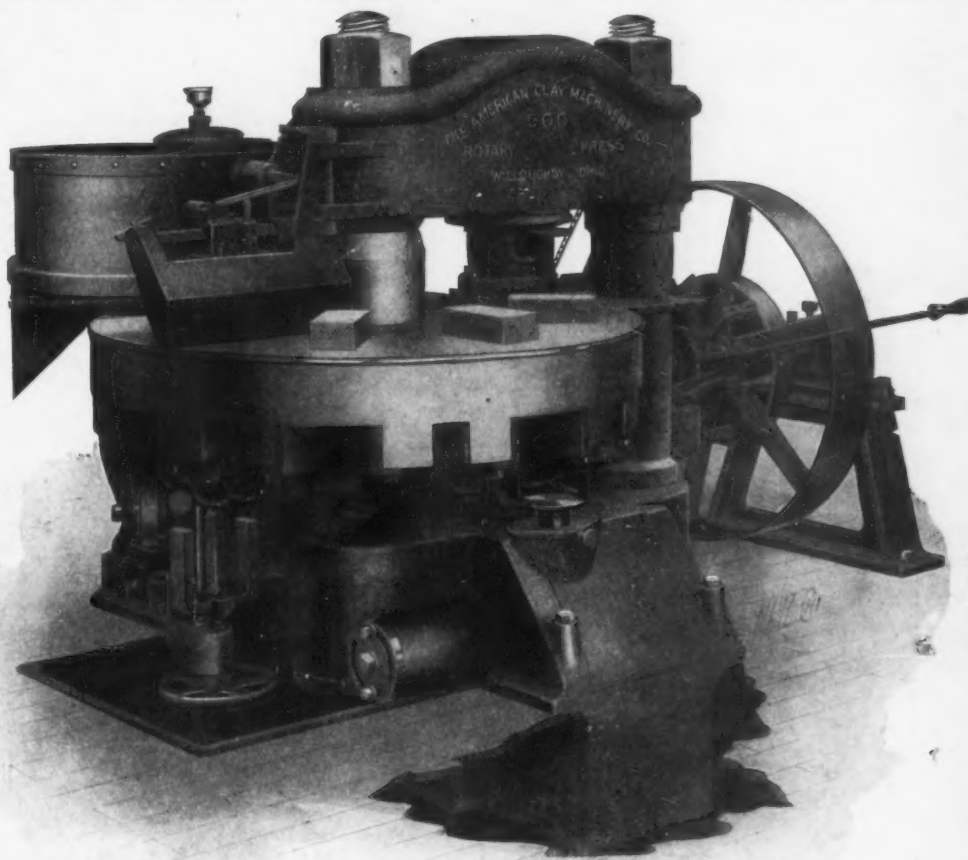
OUR Sand-Lime Brick Machinery is at least a little better than any other. We have testimonials to show it. We build it all in our own factory and are sure of its quality. We are the only firm doing this. We will design and equip your entire plant or will sell you parts of your equipment. Our catalog describing and illustrating our full line will be sent upon request.

We also build a full line of machinery and appliances for making Clay Products, Cement and Pottery, Dryers and Dryer Apparatus.

Everything we sell we make. We therefore know its quality to be right.

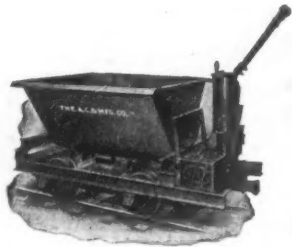
**The American Clay
Machinery Company**

WILLOUGHBY, OHIO, U. S. A.



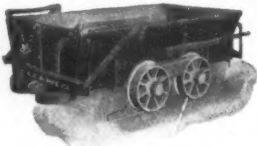
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FOR



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Side Dump Car
Equipped with Motor

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CEMENT
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AND
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THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO.

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Largest Church in the World

The Cathedral of St. John the Divine, now under construction in New York City, will be the fourth largest church in the world, being exceeded only by St. Peter's in Rome and the Cathedrals of Seville and Milan. In laying the massive masonry, cement mortar and concrete of the very best quality scientifically mixed and placed were used. The mortar and concrete were made of GIANT PORTLAND CEMENT, manufactured by the

American Cement Co.
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No matter what kind of a structure you contemplate building, it will pay you to post yourself on the advantages of concrete construction made with

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ATLAS

Over
40,000 Barrels

PORTLAND CEMENT



A concrete building means protection from fire, vermin and decay. It is cool in summer and warm in winter; requires no paint or repairs, yet permits of pleasing architectural effects and color schemes. In most cases you will find concrete construction the least expensive in the beginning and in all cases the cheapest in the end.

The success of concrete construction depends largely on the quality of the cement used. ATLAS is the highest grade of Portland Cement manufactured.

This Company makes but one quality—the same for everybody.

Tell your architect to specify ATLAS.—Ask your dealer for it. You will know it by the Trade-Mark.

Building Books FREE on request. As a guide to prospective builders we have published the following books which will be sent FREE on receipt of postage.

Concrete Country Residences. Postage 25 cents.

Concrete Cottages. Postage 1 cent.

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30 Broad St., New York

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